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A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by David Williams Nos. 66 and 68 Duane Street, New York. Entered at the Post Office, New York, as Second-Class Matter.

ADVERTISEMENTS

New York, Thursday, September 23, 1886.

\$4.50 a Year, Including Postage. Single Copies, Ten Cents.

Vol. XXXVIII: No. 13.

crustion.

The principal feature of the machine will be found in the provision for different speeds of the tool spindles, two sets of speeds being available, secured in the manner shown in the detail views, Figs. 3, 4 and 5. It will be observed that each spindle pulley has connected with it an internally toothed wheel (D, in Figs. 3 and 5) gearing with two small spur-wheels, E.E. These in turn gear with the pinion C (Fig. 3), which is mounted directly on the tool spindle and forms part of the driving pulley. The spindles of the wretch of the driving pulley. The spindles of the plate F; H is a pawl so arranged in the plate F; H is a pawl so are the tame there is no supprate to the tompressure paper will distintegrate to the compressure paper is much paper i

A New Milling Machine.

A machine tool of novel design has recently been brought out in France in the shape of a universal vertical and horizontal milling machine, built by P. Hure, of Paris. The engravings which we reproduce from Le Génic Civil convey a fair idea of its construction.

The principal feature of the machine will be found in the provision for different speeds of the tool spindles, two sets of speeds from a vailable, secured in the manner shown in the detail views, Figs. 3, 4 and 5.

s per to be made in some of the neavy and chopty seas, which are not unfrequently experienced in these 'waters, the Livadia's doubtful seagoing capacity will be somewhat severely tested, and her behavior will be watched with some interest by those naval experts and designers who approved or condemned her structural lines before she left the slips of Elder and Pearce. At all events, with moderately fair weather the Livadia will, after being cleared out and refitted, be capable of carrying in a single short voyage an enormous number of troops in case of need.

The Steam-Power of Prussia.

The number of steam engines used in a country is a fair indication of its industrial steams of the persistence with which are accounts for the persistence with which Germany endeavors to extend her expert which her export trade, the wealth of her population having, of course, not increased at the same rapid achieved by means of shifting 200 tons of iron ballast. The Pincher gunboat was moored to a buoy at a range of about 100 yards from the ship, and the fourth compartment.

Some novel experiments, instituted for the purpose of testing the value of indiaraction of a buoy at a range of about 100 yards from the ship, and the fourth compartment.

Some novel experiments, instituted for the purpose of testing the value of indiaraction of its properties of a buoy at a range of about 100 yards from the ship, and the fourth course from the same rapid achieved by means of shifting 200 tons

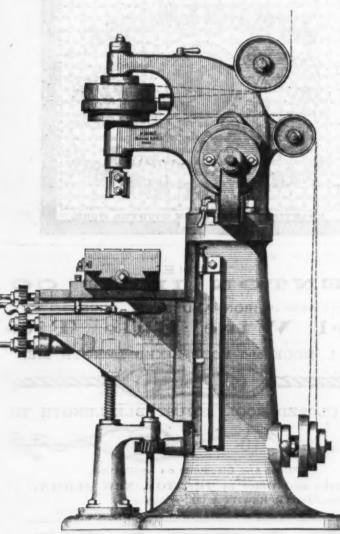


Fig. 1.—Side Elevation,



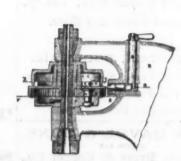


Fig. 4.—Section of Tool Spindle and



Fig. 5.-Section Along Line x y z of Fig. 4.

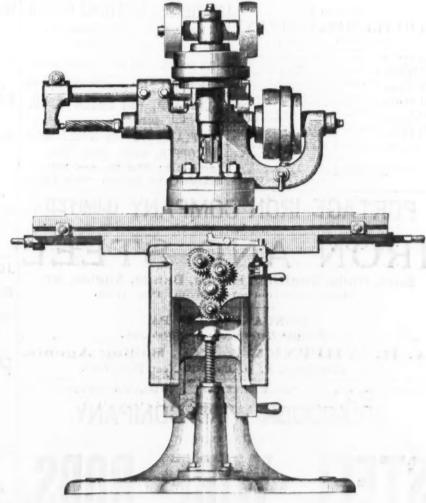


Fig. 2.-Front View.

A NEW UNIVERSAL MILLING MACHINE, BUILT BY P. HURÉ, PARIS, FRANCE,

secured. The engravings will be found to satisfactorily supplant further description. The vertical travel of the table is somewhat Over I foot, the horizontal transverse travel about 314 feet. The machine is entirely automatic

Durability of Paper Rails.

With regard to the projected establishnent of a manufactory near St. Petersburg or the manufacture of paper rails, Prof. Mattieu Williams, in the Gentlemen's

We are told by the Organe des Mines that paper rails can be produced at one-third the cost of steel rails, and that they extremely durable, the paper being con used by great pressure. Being much hter than metal these rails may be cared and laid at far less cost. They are to made in greater lengths than ordinary ails, and therefore will have fewer joints. will doubtless diminish oscillation and consequent wear and tear of rolling success or failure of the prosimply a question of durability, and anybody can make any prediction better than mere random guessing oncerning this. Many will, of course, augh at the idea as obviously aburd, but all great innovations are byiously aburd to those who do not independent them. to those who do not In reference to this we understand them.

second class, iron.

We must all be well-wishers for the suc cess of this invention, as the luxury of gliding over noiseless tracks would be charming. Even our ironmasters would scarcely complain, the rail making trade having been long since reduced to a series of transac-tions about as profitable as cashing one's neighbor's checks. My own view of the commercial part of the subject is that the superseding of iron and steel rails would be a national blessing. Our supplies of raw material are limited. We are rapidly ex-hausting our coal, and already have to largely import our ironstone. The capital now engaged in such crude work as rail-making would be far better employed in higher production. Better that the outside world should make its own rails and come to us for locomotives. An ounce of watch springs or a pound of needles is worth as much as a ton of rails, and with our excess of labor and dearth of material it is desiraable that we should be forced by competi-tion to make up value by highly elaborating small quantities of material.

It is stated that the late Russian Imperial yacht Livadia, upon the magnificent equipment and gorgeous embellishment of which Alexander II lavished so many millions of roubles, appears at last destined to be put to some practical use. The Livadia arrived at Sebastopol a few days ago from Nicolaieff. She has already been denuded of her former must remember that much of the wear and sumptuous appointments and decorations, tear of our rails is due to the crushing weight but is now to undergo a further and radical

made to catch into the wheel C at the several points J J J (Fig. 5), throwing into gear with this wheel the internally toothed wheel D. By means of the bolt L, worked by the eccutric shaft M, the pawl H may be pushed beack, throwing the wheel D out of gear. In both cases, of course, a change of speed is course, a change of speed is coursed. The coverage of the several at the such a bar having a second class iron. Although in some localities water supplies an important contribution to the ers that has taken place in Prussia during the period from 1879 to 1885, and will afford further ovidence of the great industrial development of Germany during those years. Excluding locomotives and engines belonging to the military and naval departments, there were at the beginning of

... Stationary engines. ... Portable engines and boilers. ... Marine boilers. ... Marine engines.

These machines are unequally distributed in the different provinces. Confining ourselves to the stationary engines we find in East Prussia 693; West Prussia, 1089; Berlin district, 1254; Bran-denburg, 2773; Pomerania, 1282; Posen, 983; Silesia, 5524; Saxony, 4838; Schleswig-Holstein, 1063; Hanover, 2333; Westpha-lia, 5789; Hesse-Nassau, 1187; Rhenish Prussia, 10,008; Hohenzollers, 12. The number of engines corresponds, of course, to the extent of manufacturing industry in the different parts. The power of 38,802 out of 38,830 engines has been ascertained, the total amounting to 1,221,884 effective horse-power. In 1870 the ascertained power of 29,171 engines was 887,870 horse-power, so that the number of engines has increased by 31 per cent., and the steam-power by 37.6 per cent. The greatest number of engines had between 5 and 20 horse-power; then came those of 5 horse-power and under, followed by the larger sizes above 20 horsepower, the number decreasing with the increase of the power of the separate engines.

ment, was launched in April, 1861, and her of plugging shot holes, as it is of trans-cendent importance to ascertain the effect of shell fire below deck, and also the efficacy of any means that can be suggested for arresting or minimizing the inflow of water after the penetration of a ship's sides. The use of india-rubber lining was first proposed, we believe, by Captain Fitzgerald, and the Resistance was fitted for the trial under his own direction. Four compartments were built in the bows on the port side of the water line on the water-tight flat immediately below the lower deck, and con-sequently in wake of the skin of the hull, in thickness across the athwart-ship bulk-heads of the ship, thereby forming a sort of improvised longitudinal bulkhead. The

tionable for this reason, but it lamentably total cost was £258,120. In length she measured 280 feet, and in beam 54 feet 2 from both the light and the heavier shell inches, with a draft of 26 feet (10 inches. She is protected for 148 feet of her from the side, as they were expected and inlength with armor 4½ inches thick, backed by 18 inches of teak, fitted outside the iron hull. The object of the experiments last week was to teat the merits of india-rubber and asbestos fiber as a means other matter, and as it failed with iron as a backing its behavior upon steel, which more easily splinters, may be readily conjectured. The gun to be employed against compartments Nos. I and 2 was to be determined after the effect of the first 2 rounds had been discovered. The results of the firing upon the other compartments were much about the same. The small shells of a rapidfiring gun, which was next tried, appeared to hit where they could do the most harm, and the damage wrought by them was found to be even greater than by more powerful weapons. Men were sent to plug up the wounds by means which is 1/6 inch thick. These compartments which is 1/6 inch thick. These compartments of the usual plugs and oak stoppers. The Rewire 4 feet deep, 5 feet broad and varying sistence having again been made tolerably from 10 feet to 13 feet in length, and were formed by carrying an iron screen 1/8 inch the rubber patch and the asbestos cell out of the variety of the variety. They were afterward at the rubber patch and the asbestos cell out of the water. They then were afterward atrt of tacked in their turn by the 6-pounder, three The rounds being fired against the former and impersised longitudinal bulkhead in rounds being fred against the later. The results in these india-rubber of different thicknesses, two of cases were considerably more satisfactory, the compartments being lined with ½-inch as projectiles passed through the rubber inshests and the others with 1-inch and 1½-inch sheets respectively. On the starboard bow a patch of rubber 1 inch in thickness was placed on the exterior skin of the ship while the aperture made by the third shot had

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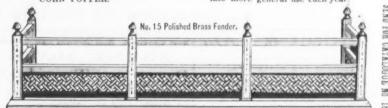
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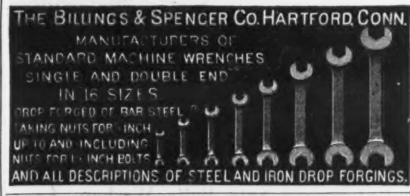
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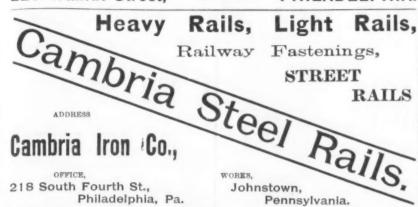
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English Letter.

(From Our Regular Correspondent.) London, September 6, 1886.

THE SITUATION

is by no means better or clearer than it was when I last wrote to you-indeed, in some respects it is rather more involved than it was at that time. Politically the news from the Balkan States is most disquieting, and has been made the more so by the intelli-gence received to-day that the Prince of Bulgeria has decided to abdicate, after all. People are not so much concerned in that event per se as in what it portends. The sinister activity of Russia is held to mean that other and more important events are on the cards; consequently there is everywhere that unrest and suspicion which are engen-dered by the unknown. It is feared that the Czar is determined to reopen the East-ern question with the intention to wipe Tur-key out of the map of Europe, and under the impression that by so doing he will not be in any way hindered by Bismarck, while the resulting inevitable squabble about Egypt will set by the ears England and France in a manner eminently calculated to prevent either of those powers from taking any act-ive part in the real combat. This political embroglio is very naturally most predjudicial to trade and commerce. It is causing the limitation of all business with Turkey, the Balkan States, the Levant and Asia Minor; consequently it is a thorough damper upon the spirits of those who had begun to entertain sanguine hopes of the recovery of trade. We who are influenced by these cousiderations cannot avoid envying you Americans who live free from these worries and miserable ambitions.

During the week we have had a further spell of very hot weather, but within the past few days there has been a break, accompanied by heavy thunder storms, rains and waterspouts. These storms have done considerable damage to the crops, but I believe that in a larve majority of instances. lieve that in a large majority of instances the wheat, oats and barley had been safely and securely garnered before the weather broke. As to the yield, I refer readers to my estimate of a week or two ago, to which

opinions I still adhere.

In the North of England there is not unlikely to be some trouble with the iron-workers on the question of wages. The employers have given notice of a reduction, and to this the men demur on the plea that their wages are already sufficiently low—so low, indeed, that many of them are alleged to be unable to earn a satisfactory livelihood. to be unable to earn a satisfactory livelihood. The puddlers are receiving 6/3 \$\mathbb{\eta}\$ ton, whereas it is contended by the masters that the proper elongation of the sliding scale would bring that rate down to 5/, to be in proportion with the selling price of bars. What may be the upshot of the dispute yet remains to be seen. It is worth noting, however, that the leaders of the workmen have recommended the men to accept a reduction provided the masters are accept a reduction provided the masters are also able to secure reductions in royalties on minerals and in railway rates. This proviso is a very curious one, inasmuch as it asks the ironmasters to do what they would be very pleased to do had they the power. As a matter of course they would only be too pleased to have these lower rates, but, if they have to make the drop in wages contingent upon them, it is but reasonable to suppose that the ironworkers will enjoy their cur-rent rates of remuneration for a long time to come. In Scotland the resolute manner in which the coal miners are re-stricting the output of coal is causing some inconvenience and is leading to a much more equal balance between the production and consumption of fuel. In some cases the prices have been raised, while in others early advances are spoken of as being cer-The action of the miners in this is certainly novel, and so far has been effect-The adoption of restriction in the Cleve-

land district is causing the discharge of some hundreds of ironstone miners thereabouts. This was to have been expected, and the movement must spread as the res riction is better enforced. There are still doubts expressed as to the bona fides of the Cleveland combination, but, so far as I can learn, all the scheduled arrangements are being car-ried out as faithfully and rapidly as is possible under the circumstances. It is a "stern chase," however, and such chases are proverbially long ones. Many months must elapse before any adequate impression is made on the reserve stocks.

THE IRON MARKET

has been far from buoyant during the week, and on the whole disappointing. The Cleve-land restriction commenced on September 1, but it is felt that so much has to be done and the time must necessarily be so far ahead before benefit can accrue therefrom ahead before benefit can accrue therefrom that practically the market must be left to its merits pure and simple. Difficulties with the workmen and the miners have been threatened in Cleveland, while in Scotland there is a possibility of affairs being brought to a crisis by the restriction pursued by the miners. Moreover, with such unsettling elements operating upon the market both holders and buyers seem rejuctant to complete transactions beyond what are necess. plete transactions beyond what are necessary for immediate requirements. At Glas-

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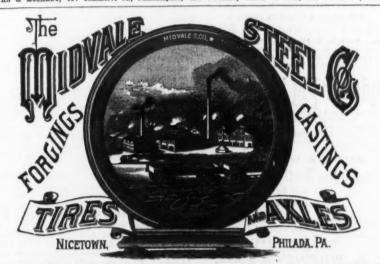
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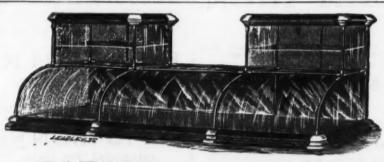
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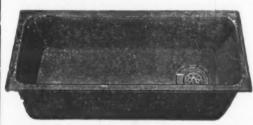
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restriction have given way. In short, those prices were never realized, and al-In short, though nominally 29/9 @ 30/ are now mentioned, lots have changed hands below those figures. A rather better feeling has prevailed on the West Coast, but is not sufficiently marked to create any new feature. Mixed lots are still quoted at 41/6 @ 42/. In Lincolnshire there are rumors of a desire for restriction, and a furnace has been blown out within the last few days, but nothing further has been done in the matter. Staffordshire continues in the inanimate condition it has manifested for so long. The little move that was made in the galvanized-iron trade has died away, and galvanized-iron trade has died away, and the situation is held to be more unsatisfactory than ever. The finished departments, too, show no sign of improvement, but rather the contrary, specifications being more and more difficult to secure, almost at any price, yet it is well enough known that there is plenty of work that must sooner or later come forward. In Cleveland merchant bars are quoted at £4. 10/, less 2½%. Best bars, £5, and best best, £6, both less 2½%. Iron ship plates, £4. 7/6, less 2½%. In Staffordshire laterates for all kinds of finished work rule. Scrap is quiet at former prices. Freights for pig iron by ordinary steamer from Glasgow to New York remain steady at 5/%? for pig iron by ordinary steamer from Glasgow to New York remain steady at 5/ % ton; from Liverpool to New York for tin plates they stand at 4/, and primage. Steel, taken all round, continues to be fairly brisk, and much inquiry is still made for billets and blooms for the United States. So far, however, the business done has been made compared with the inquiries. Steal small compared with the inquiries. Steel rails are quiet. Rumors are abundant as to rails are quiet. Rumors are abundant as to what is about to be done and what has been done, but nothing reliable can be gathered from the best sources that would justify mention of any of them. It is generally believed, however, that in a few weeks at most some long-looked for developments may benefit the market. Prices vary for trader's excitor from for 12, 15/1 standard sections from £3. 12/6 to £3. 15/, and in a few instances a little more money has been obtained.

SCOTCH PIG IBON

is a little better than it was at the beginning ot last week, but is still not very strong.
There are 82 furnaces (64 on ordinary pig) in
blast as compared with 89 a year ago. In Connal's Glasgow stores there are 815,937 tons
of pig, against 618,995 tons this date last
year—an increase of 4047 tons last week.
Shipments to date are 260,230 tons, 40,771 tons less than to the same date last year, while the importations of Middlesboro' pig into Scotland have been 217,144 tons, or 31,453 tons in arrears. Current quotations are:

Gartsberrie,	t Glas	go	W								 48/	41/
Coltness,	64	-							0		 47/	42/6
Langloan,	8.6										 48/	41/
Summerlee,	0.0										 45/	41/
Calder	6-6					 					 45/	41/
Carnbroe,	46					 			0.1		 40/6	39/
lyde,	6-6						0				42/6	39/6
fonkland.	4.6					 					40/6	36/6
lovan, at Bro	omiela	w.				 					40/9	36/6
hotts, at Leit											44/	48/6
Carron at Gre	ngem	ou	tì	à.					0 (, ,	46/6	43/6
Hengarnock,	at Ard	ro	N	a	n						 48/	39/6
Eglinton,		66						. 0			 39/6	86/
Dalmellington		6.6									 40/6	88/

is still quiet, and prices are a little more uncertain than they ought to be under the cir-cumstances. For G. M. B., f.o.b. at makers wharves in the Tees, quotations are:

No.	1	Foundry	88/8	White 28/1
0.6	2	46	82/8	White 28/2
8.6	ä		CBL7//CL1	remied metal w
6.0	4	66	29/9	Kentledge 33/9
4.6	4	Forge	29/8	Cinder 27/0

HEMATITE PIG IBON

remains steady, with good shipments and a fairly strong demand. Prices are as under:

	No. 1	No. 2, 41/9	No. 8.
Lonsdale	42/		
Workington		41/9	41/6
West Cumberland	42/	41/9	41/6
Lowther	42/		41/6
Distington	48/	41/9	41/6
Solway	42/	41/9	41/6
Maryport	42/	41/9	41/6
Harrington	48/6	42/6	41/9

Reserve stocks are 109,961 tons in the stores only. There are 40 furnaces at work in the district. Shipments to date have been 377,934 tons, or 50,984 tons ahead of last year. Rail shipments are 213,060 tons, or 17,082 tons in advance of last year's fig-

BLAST-FURNACE RETURNS.

The monthly returns of the Ironmonger (London) give the following results on Sep-

7	otal number of furnaces	
A	Existing August 28, 1886 661	0
	In blast August 28, 1886	5
	Out of blast August 28, 1886 496	k
	In course of erection August 28, 1886	
	On ordinary pig iron of various districts 280)
	On hematite pigs (about) 84	
	On spiegeleisen 11	
	On basic (about) 8	5

The figures relating to the number of furnaces at work show a steady decrease, there having been 391 operative on August 1. As compared with a year ago the number has fallen off by about 100, so that the process of depletion is going on slowly but very effectively indeed.

TIN PLATES.

In London these commodities are in a very little better position than they were at the time of our last report. It would appear from the important reduction in the price of Bessemer plates that the makers of coke plates have henceforth to fight very keenly for existence. During the week a fair number of orders has been placed, but there is no improvement in values. On the contrary, we can now quote ordinary IC cokes no improvement in values. On the contrary, we can now quote ordinary IC cokes 12/6, and Bessemer cokes 12/9, f.o.b. Liverpool. In Liverpool there has been a considerable increase in the amount of business done in tin plates, but the prices are very low. There are so many coke tins and Bessemer steel cokes of good brands offering at 12/9 IC, f.o.b. Liverpool, with no buyers that it is impossible for them to remain firm even at that for any length of time. Many of the ordinary run of brands are selling at 435 and 437 Guoin St., 46 and 48 Wight St., Some buyers have been placing their orders rather freely. The next in importance have been Siemens steel plates with coke finish, and let pneumatic tubes. 12/6 IC. The bulk of the business has been

a few orders for which have been placed at 13/6 IC. Now the coke tin and steel wasters are down to 12/. As a general rule there has been a little more doing in these, several orders having been booked this week. In charcoal tins there has been but little done; in fact, sales of these have been limited for a long time past now. The recent downward turn of affairs has been a heavy blow to the terne-plate business; 11/6 @ 12/6 IC are the prices now at which good and very suitable brands are to be had in abundance, and 13/ @ 13/6 will secure many of the choice

THE HARDWARE TRADES. In London retail trade is, of course, at this

time of year passing through a period of inactivity. The influx of visitors into London from the colonies and America, and of working people from the provinces, helps to mitigate the quietude, but only to a certain extent, the latter, as will be readily understood, only contributing to the sales of the cheaper class of fancy articles. Electroplate, cutlery, domestic tools and general hardware are alike in quiet demand in London. The country trade, especially on the South Coast, is reported well up to the average. At Birmingham business shows little signs of improvement in this district, though on the whole there seems to be rather more doing than there was a week ago. Those firms who make winter goods are beginning to receive orders with more freedom, and hopes are entertained of the next three months being busy ones. The sporting season has led to the local gun makers being better employed than for some time past, but those firms who only make military weapons are not busier than they were three months ago. Bedsteads of medium quality are being exported in tolerably large quantities to Australasia, New Zealand being perhaps the best market. Makers of anvils are rather better applications. employed, and the Redditch needle trade is reported to be in a more healthy condition. reported to be in a more healthy condition. At Sheffield there is no doubt that a better tone exists generally, though it may perhaps be due more to the recent big orders for armor plates and the good lines which have fallen to some firms. Nevertheless, there is a better inquiry all round for heavy castings for railway material, such as springs, tires and axles, for saws, files and tools of all descriptions. The United States have sent better orders of late and from the colonies. orders of late, and from the colonies, Australia in particular, a few orders have come in which offer encouragement after the prolonged depression. Much more reasonable is it to found anticipations of future improve-ment on such news as I hear from South Africa. There is every prospect that this important market, which has for years past been practically dead, is about to witness a revival. A more settled order of things, social and political, is encouraging enterprise and fostering investment.

Steel Springs.—A circular dated September 10, issued by the A. French Spring Company, Limited, says: "Owing to the growing disposition on the part of consumers to procure material of all kinds at lower prices represented by the compalled to the companion of the part of the companion of the comp prices, manufacturers have been compelled to look for cheaper grades of material. In view of this fact, we have decided to manu-While we have always used and advocated crucible cast steel in the manufacture of railway locomotive and car springs, and experience proves that in the end it is the most durable, and hence the most economical, some railroad companies, however, have adopted an analytical, as well as a physical, standard of their own, for the guidance of manufacturers, and which permits the use of steel manufactured in bulk, and therefore much cheaper than that quality of steel known as crucible. These railroad companies ask no guarantee, and assume the re-sponsibility of the springs giving good service, insisting only that the springs pass the physical and analytical tests to which they are subjected at the time they are furnished. But, as a comparison of value, it may be stated that crucible cast-steel springs are now in service and in good condition that have been in constant use for over 16 years to our knowledge. It is our aim now, as ever, to produce the best and most service-sple springs at a fair and reasonable price. able springs at a fair and reasonable price. We shall use the highest quality of crucible cast steel, as heretofore, and the best grade of special steel; and our patrons can always depend upon obtaining from us just what they order, and the best of its kind, leaving it optional with them as to what quality they desire to use. The difference in the cost of the springs will only be the difference in the cost of the material used, as our method of manufacture will be exactly the same in both cases. We shall use nothing but the best quality of crucible cast steel in the manufacture of our locomotive springs."

A correspondent of the London Globe writes: "One of the largest firms in the United States is busily engaged in carrying out a large contract for the military authorities at St. Petersburg for metal sheeting, the cost of which will amount to nearly £1,000,000. It is stated that the contract has been sent across the Atlantic simply to test if it can be executed in a way equal to the work supplied by English contractors. the work supplied by English contractors."
With reference to the above the Sheffield
Telegraph says: "A local manufacturer who knows the main facts favors us with some information. He is able to confirm from his own private knowledge the general accuracy of the statement that large Russian accuracy of the statement that large Russian orders for cartridge metal are being placed in America; but there is no question of testing the quality of the American work, since there are establishments in the United States engaged in this branch of the trade which cannot be matched either in England or in Germany. No doubt European manufacturers could supply everything that the Russian Government requires in this way, but when the Czar is making rapid and extensive preparations for war, as he now is, he sive preparations for war, as he now is, he naturally places such evidence of it as cannot be concealed where the fact is least likely to be advertised to those who may be his asteomists." his antagonists."



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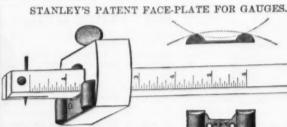
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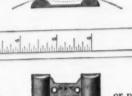
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NEW PUBLICATIONS.

UR NEW ALASEA, OR THE SEWARD PURCHASE VIN-DICATED. By Charles Hallock. Illustrated from skeuches by Prof. T. J. Richardson, New York. Forest & Stormes Publishing Company.

Mr. Charles Hallock is a graceful and picturesque writer of extensive experience as a traveler and observer, and in this little book he has given us more useful and inter-esting information about Alaska than can be found in any other volume with which we are acquainted. He has undertaken to how that Alaska is a valuable territorial acquisition by reason of natural resources, acquisition by reason of natural resources, and that a visit thither is repaid by observation of the physical phenomena of the territory, concerning which so little is really known. He assumes—and not without reason, as one who reads his pages will conclude—that Alaska hes been misconceived, maligned and misrepresented. He assures us that it wishly fortile and observables. mangaed and misrepresented. He assures us that it is richly fertile, and altogether a most charming place for summer exploration and pleasure travel.

The author has endeavored to combine

entertainment with a didactic purpose, and has succeeded. He describes his journey from Port and, Ore., to Juneau, in a very pleasant way, with some good suggestions to carriers and travelers. He then passes to the consideration of the economic value of the country, and describes its resources in a way well calculated to excite surprise. His descriptions of the natives and their ways of living are interesting and instructive. From

his chapter on mineral resources we quote as follows: "I suppose that mining in Alaska is much like mining anywhere else; processes are similar and familiar. The most interesting part of the business is that it is an estabushed fact. The mines and the miners are there, and, while the incredulous are quesioning even their existence, the industrious and hopeful are busily engaged in taking out the gold. There is no doubt that in the early days of discovery and prospecting there was more swindling to the square inch than in any other known location, but swindling was made easy because the 'stuff' swindling was made easy because the 'stuf' was there, the indications were there, and pay dirt and bonanza quartz were there. Officers of the army and navy who were on the station were the principal investors and chief sufferers, because nobody else had any ready cash. These confiding and intelligent gentlemen, who were on the spot and took the pains to examine for themselves, making interminable tramps through the wilderness to visit quartz ledges and placer disgings. to visit quartz ledges and placer diggings, eagerly 'blew in' all they could spare each pay day on the faith of their own investigations. I know one officer who has no less than \$2500 so placed, and I believe it is well invested, inasmuch as it is judiciously distributed. Want of capital and mechancel appliances have made investments. distributed. Want of capital and mechanical appliances have made investments unremunerative, but not worthless. As soon as ever capital was forthcoming the mines were developed with profits more than remunerative. The largest stamp mill in the world has now been in active operation there for nearly a year. It is located on Douglas Island, opposite Juneau, and carries 120 stamps, working the whole year round. It is owned by San Francisco parties. The ore comes right out of the side of the mountain (which rises abruptly from the ocean). tain (which rises abruptly from the ocean), and is shot down an inclined plane to the stamp mill, where it is treated; and vessels drawing 20 feet of water can lie right along-side the rocks of the natural shore and receive their freight not a hundred yards from the mill. The primitive forest clothes the slopes of the mountain from base to summit, and fuel is all around in intimate proximity. and fuel is all around in intimate proximity. No plant of such value was ever erected or operated at so cheap a cost. It is said the outlay was \$500,000, and that \$16,000,000 have been refused for the property. It is a low grade ore, yielding \$5 to \$100 per ton of quartz. No stock is for sale. The first gold brick came out in July, 1885, and weighed 297 ounces. In August the output was equal to \$60,000, and the mill is now reported to be running up to \$100,000 a reported to be running up to \$100,000 a month, with improving prospects. It is said that Senator Jones, of Nevada, who is one of its principal stockholders, is adding \$250,000 a year to his income from its out-

veloped. This year machinery will probably be set up by its owners on a scale equal to the Douglas plant. Other new and valuable discoveries have been made on Douglas Island the past winter. At Wiloughby Island in Cross Sound, at the North Star ledge near Juneau, and Kilisnoo, there are said to be rich deposits of ore, and many shares have been put on the market. These insulated properties so far pan out the best.

"On the main land, just across the channel from Douglas Island, and 6 miles back from the shore, in the heart of the mountains, is Silver Bow Basin, where there are stores, blacksmith shops, boarding-houses and tenements for a large community engaged in placer mining, who turn out \$20,000 bulion every month from May to October. The estimated yield for 1884 is \$120,000. I am not aware that it was greater for 1885. The altitude of the basin, which is just above timber line, is so high that the winters are very long. The lower enough of snow for prospecting in April. Here are scores of sluces, expensive viamountains, however, are ordinarily clear enough of snow for prospecting in April. Here are a scores of sluces, expensive viamountains, however, are ordinarily clear enough of snow for prospecting in April. Here are a scores of sluces, expensive viamountains, however, are ordinarily clear enough of snow for prospecting in April. Here are a scores of sluces, expensive viamountains, in place all over the basin and up the sides of the inclosing mountains to that he put in the best part of the time at

advantage when the quartz is decomposed and soft. It is a sort of circular tub 20 feet in diameter and 4 feet high, with a hard stone floor and an upright shaft in the cen-

ter which carries four arms, like a clothes dryer. At the ends of these arms heavy flat blocks of stone are attached by chains, and as the arms swing around they drag the stones over the bottom of the tub and pulverize the quartz which is fed into it with a due proportion of quicksilver and such chemicals as the nature of the ore may require. The machine is driven by a simple water-wheel attached to the same shaft; a sluice placed a few inches above the floor lets off the waste water, the precious metal uniting with the quicksilver and settling to the bottom of the tub. There are two of these contrivances in the Silver Bow Basin. These mines have made Juneau quite the center of business in Southeastern Alaska.
"About to miles from Juneau is the

Chilkat country, which Captain Beardslee succeeded in opening to miners in 1880 succeeded in opening to miners in 1880 through the instrumentality of a prominent chief named 'Sitka Jack,' whom he sent into the interior as plenipotentiary, arrayed in all the self-sufficiency and authority of a blue frockcoat, brass buttons, a colonel's stripes, a navy cap with gold band and device, and, I believe, a sword. He remained all winter, dispensing good cheer liberally from village to village, and when he returned in the spring the up country natives said it was 'all right; the white people might come;' whereupon in 1881 a schooner immediately outfitted at Sitka to start for immediately outfitted at Sitka to start for Chilkat. Jack lives at Sitka in one of the best houses in the 'ranche,' white-painted, with windows, green blinds, porch and veranda, and it is said he is worth \$10,000. He and, and it is said he is worth \$10,000. He is industrious and shrewd, and, besides working in the canneries, picks up a good deal of money in 'little odd jobs.' One summer he made \$300 in the cannery alone. From Lynn Channel and Chilkat Inlet, 120 miles northeast of Sitka, there are four passes even the mountains to a chain of four passes over the mountains to a chain of lakes 150 miles long, which form the head waters of the Yukon, the best of which passes—25 miles in length—was selected by Lieutenant Schwatka for his exploring tour, already referred to in this volume. Valuable mineral discoveries have been made on the banks of the river, and I have reliable information that one miner has staked out a claim on a vein of gold-bearing quartz 600 feet wide. In his report Lieutenant Schwatka says :

"'The d'Abbadie, a tributary river of the Upper Yukou, is important in an economical sense, as marking the point at which gold sense, as marking the point at which gold in placer deposits commences. From here on nearly to the mouth or mouths of the great Yukon, a panful of dirt taken from almost any bar or bank with any discretion will give several "colors," in miners' parlance.' This gold has been ground out of the far-away mountains by the rasping glaciers, and deposited with the gray glacier mud which is brought down by the streams from the ice fields. It is probable that all the environment of the mountains which inclose the great central plateau of the Yukon is rich in minerals. Schwatka mentions having discovered a party of American miners already at work on the Stewart River, where they had found good prospects, and since the spring of 1886 opened several and since the spring of 1886 opened several hundred miners and prospectors have found their way across the Chilkat trail to the dig-gings, which seem to grow richer the more

they are developed.

"The mines about Sitka, valuable and innumerable as they are, have remained unproductive until the present year, but now unproductive until the present year, but now the richest gold claims yet discovered are being systematically developed by a com-pany competent in all respects, who were incorporated in November, 1885, under the laws of Wisconsin. They are called the Lake Mountain Mining Company, and their president is C. A. Swineford, brother of the present Governor of Alaska. B. K. Bowles, of Baraboo, is secretary, and M. C. Clarke, cashier of the First National Bank of Madi-son, is treasurer. Nicholas Haley, the old pioneer prospector of Alaska, is a large son, is treasurer. Nicholas haley, the old pioneer prospector of Alaska, is a large stockholder. The company have abundant capital, and began work early last February with all requisite tools for engineering, mining, assaying, &c. In May they had begun working the placers, and had erected wharves and warehouses at the head of Silver Ray, some 4 miles distant from Sitks on VERINGS,

Right alongside of this mine, in continuation of the same ledge or formation, is the Treadwell claim, also owned largely by san Francisco parties, which is found equally rich in ore. Its shares are at a very high premium, although the mine is not developed. This year machinery will probability be set up by its owners on a scale equal to the Douglas plant. Other new and valuable discoverses here.

hose, pans, and from conduits to inches in diameter, in place all over the basin and up the sides of the inclosing mountains to the very snow line. Several tunnels have been driven into the quartz ledges which yield a fair supply of gold. Claims have been staked out everywhere. Lead of the richest kind is found in big nuggets as well was unfavorable, and from that date until the transfer of the revitory to the United richest kind is found in big nuggets as well as gold. I have myself broken open large chunks of quartz which seemed to promise nothing, and been surprised at the richness of their revelations.

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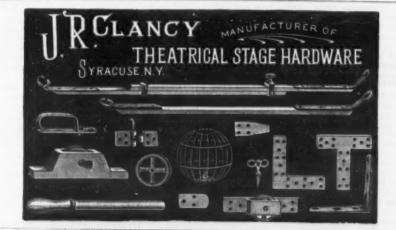
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cinity of Sitka was made by a soldier named Doyle, in 1871. In 1872 stringers of quartz were found at Indian River, I mile from town, and in the mountains back of from town, and in the mountains back of Silver Bay, 10 miles from town, and the 'Haley & Milletich Ledge,' the 'Bear Ledge' and the 'Upper Ledge' successively came to light. On December 9 of that year the first blast ever made in Alaska quartz was exploded, and from the rock thrown out and broken up by it about \$60 worth of free gold was obtained. On Christmas day the 'Stewart Ledge' was discovered. The next year in 1872 two On Christmas day the 'Stewart Ledge' was discovered. The next year, in 1873, two mining companies were formed of army officers and citizens of Sitka. In 1877 the 'Lower Ledge' passed into the hands of San Francisco people, who organized the Baronoff Island Gold and Silver Mining Company. Sitka is situated on Baronoff Island. This company watered the stock so that outsiders declined to invest, although a shaft which is down 60 feet is in good ore all the way. In 1876 the Stewart passed into the hands of Portland men, under the name of the Alaska Gold and Mining Company. This the Alaska Gold and Mining Company. This mine has been mismanaged. Nevertheless mine has been mismanaged. Nevertheless it possesses a steam 10-stamp mill, shops, cabins and full outfit. A tunnel is in over 100 feet, in good ore all the way. Another 100 feet above it is in 84 feet, and another was about being started in the month of February, 1880, at which date the output of 11 days' work was about \$1800 worth of bullion with core at the product of the state bullion, with over 14 pounds of amalgam produced from free gold alone, ready for shipment. These statements I gathered from Captain Beardslee's report of 1880, and I Captain Beardslee's report of 1880, and I am not aware that anything has been done in that vicinity since then. Other ledges discovered at sundry times on the same range are known as the 'Haley & Francis,' Wicket Fall' and 'Great Eastern,' and there are more still further East. Assays of the 'Great Eastern' by Selby & Co., of San Francisco, yielded \$175 gold and \$5.20 silver per ton in 1879. These specimens came from the surface, and showed no free gold whatever. Haley claims are found all over the country, one of which is said to have yielded him \$20,000 in five years' arastra work; but there are lots of 'holes' said to be valuable which are utterly worthless, and always were. In the enumeration of mining enterprises I should add that the Mexican Gold and Silver Mining Company and the Admirality Gold and add that the Mexican Gold and Silver Min-ing Company and the Admirality Gold and Silver Mining Company, each with \$10,000,-000 capital stock, and each with J. D. Fry, T. J. Hay, James Treadwell and C. F. Stone as directors, were recently organized at San Francisco, the former for the development of valuable claims in the great gold belt of

mirality Island. These companies are preparing to get to work this summer.

"Time was, in the days of the Frazer River gold fever, when miners fitted out at Wrangell and followed up the Stickeen River, through a defile of the Alaska Mountains into the British territory beyond, where the diggings were. Wrangell had a population of 3000 people then, and could not accomodate them all. So, when the houses were filled, old hulks of vessels were converted into hotels and lodgings, and these still remain high and dry on the shelving shore, but gradually falling to decay, like a majority of the houses in this at present almost deserted town. Perhaps in some not distant day the mines will once more pan out rich, and general business remore pan out rich, and general business re-vive, though, of course, there is a quantity vive, though, of course, there is a quantity of quartz holes scattered all over the country which are, in the native vernacular, 'kultus' (no good). To conclude: Alaska is a fascinating country for prospectors. One can find there a 'show' of everything he wants—gold, silver, iron, cinnabar, copper, marble, coal and great red garnets as big as hickory nuts, but the results do not always realize the promise, and the reason presumably is a lack of capital sults do not always realize the promise, and the reason presumably is a lack of capital necessary to develop them. Marble crops out all over the country through which the coastwise steamer regularly passes. Alex. Choquette, of Wrangell, has some very fine specimens of mottled white and blue marble from a quarry quite convenient to tidewater; a good quality of white marble is found on Lynn Canal. Valuable coal discoveries have been made near Kilisnoo, and Mr. C. C. Bartlett, a leading merchant of Port Townsend, Wash. Ter., has found excellent coal on Admiralty Island. Captain Nichols, of the United States steamer Pinta, working, but when a certain fron company found nerve to quietly undertake the business it cleared up 63,000 tons the first year, and 226,000 the next. All that is needed in Alaska is capital.

"Coal mining is an industry which in nine years has undergone a wonderful development in British Columbia. Coal has been found widely distributed over the mainland and islands on Vancouver and Queen Charlotte Islands well to the north, at which lastnamed place the only vein of anthracite yet discovered on the Pacific Coast has been found. As the geological structure of Alaska is similar to that of the country ad-Alaska is similar to that of the country adjacent, why may not like deposits exist in each? The gold mines of Alaska are far richer than those of Cariboo and Cassiar, in British Columbia, of which the output of Douglas Island is a full assurance. At present the mining laws are satisfactory. Captain Beardslee speaks with high approval of the good behavior of the miners of Alaska, even in the idle days of winter. 'They not only conducted themselves in the most reonly conducted themselves in the most respectable manner, but have given their willing co-operation in carrying out such simple laws as we have found it advisable to establish from time to time.' This testimony applied to the days before there was any civil government. I certainly found the Silver Bow miners a most orderly community, among whom no stronger beverage was current than the wholesome beer of the country, manufactured at Juneau."

Mr. Hallock gives an interesting account

it is not more fully and attractively illustrated, and that the paper and printing are not better calculated to please the connoiseur in such matters.

Manual of Lithology. By Edward H. Williams, Jr., professor of mining, engineering and geology, Lehigh University. South Bethlehem, Pa. New York, John Wiley & Co., 1886.

With the object of meeting the requirements of those studying lithology at Lehigh University, Professor Williams has written a little work on the rudiments of that science, which will be found to possess some usefulness. Based as it is upon a classification by microscopic peculiarities of the rocks, it can only cover the ground in a somewhat crude manner, since the most accomplished lithologist will be frequently placed in a position when he must suspend judgment until the microscope has told its story. With such limitations to fetter him, Professor Williams has succeeded well. We cannot help objecting, however, to such statements as this, page 53: "Greisen is of common occurrence in Saxony and Cornwall, and accompanies tin ore." In reality tin ore is occasionally found in greisen. We believe it to be a sweeping assertion, too, to state that when hypersthene occurs with magnetite the latter is generally titaniferous. With the object of meeting the requiretitaniferous.

Chemical Fire Engines.

Speaking of chemical fire engines at the recent Pitt-field (Mass.) State convention of firemen, Capt. E. F. Martin said that in extinguishing fires with a chemical engine the singuishing ares with a chemical engine the principal advantage lies in being able to do so with little water damage. The efficiency of chemical engines depends a great deal on the good judgment of the person or persons who have the management of them, as well as the officer who has command at the fire where they are called into action. Every one of these machines leaved within a size. one of these machines located within a city limit should have four permanently employed limit should have four permanently employed men to manage them, and these men should strive to qualify themselves to the service required. The method of carrying the hose to be used on these engines differs with many, some preferring a "basket," while others a reel. It is seldom that over three lengths of hose (150 feet) are required to reach the fire, and if this amount is placed double upon a reel, with connections to engine and pipe attached, you are obliged to remove but 75 feet before you have the full complement. By this method is avoided the kinking and twisting of the hose, which cannot help being the case when it is laid in a basket or placed eightly or year. being the case when it is laid in a basket or placed single on a reel. Captain Martin recommends the use of rubber-lined cotton hose, because it is lighter and less liable to kink and twist while under pressure. These machines can be arranged so as to throw a large stream, and in his opinion to be the equal of a steam fire engime for from six to eight minutes. To obtain this result they should be furnished with an independent outlet and gate attachment with free water. Douglas Island, the latter for ledges on Admirality Island. These companies are preshould be furnished with an independent outlet and gate attachment, with free waterway, and suitable connections for 1½-inch or 1½-inch hose. To this should be attached a ½-inch or ½-inch shut-off nozzle. The engines should be double tanks of 75 gallons capacity. Chemical engines have demonstrated their usefulness in no uncertain terms in combating with oil fires. A stream from one of these machines through a ½-inch nozzle will do more execution than one from one of these machines through a %-inch nozzle will do more execution than one from an inch nozzle of a steam fire engine in this special line. They are the best of guardians in tenement-house districts. They can be used to a great advantage in buildings adjoining the one on fire, especially where there is machinery with open beltholes. Statistics of fire insurance show that the fire losses of the country are increasing every year, averaging, as they do, from every year, averaging, as they do, from \$85,000,000 to \$100,000,000 a year. This great leak can in a great degree be checked by the introduction of the most improved fire apparatus, among which are the chemical engines.

Nantical Schoolships.—"The impor-tance of establi-bing schoolships," remarks the Marine Journal, "for the education of the Marine Journal, "for the education of the young men of the United States who may desire to follow the sea for a livelihood cannot be over-estimated. There has been no time in our history or the memory of the cellent coal on Admiralty Island. Captain Nichols, of the United States steamer Pinta, claims to have found a valuable mine of bituminous coal. There is no discourage ment in the outlook. Time will prove it. After the mineral discoveries at Vermillion Lake, in Minnesota, it took 20 years to convince people that the ore would pay for working, but when a certain iron company found nerve to smith of the distribution of the United States. Now that there is a prospect of the United States. case seamen were needed to man the naval vessels of the United States. Now that there is a prospect of quite an increase to our naval fleet there should be some movement made to largely increase the number of American seamen, and this can only be done by locating schoolships at all the important seaports and offering something more than ordinary inducements for boys to become sailors. There are enough old war vessels that are fit for no other purpose to furnish the ports of Portland, Boston, Philadelphia, Baltimore, Norfolk, Charleston, Savannah, Pensacola, New Orleans and Galveston with schoolships, and the necessary steps should be taken by the leading citizens of the above-named ports to present this important matter to Congress at its next session. It would seem that no argument would need to accompany a proper bill to carry out this purpose."

It is claimed that by a new process white wood can be made so tough as to require a cold chisel to split it. This result is obtained by steaming the timber and submitting it to end pressure, technically "upsetting it," thus compressing the cells and fibers into one compact mass. It is the opinion of those who have experimented with the process that wood can be compressed 75 per cent., and that some timber which is now considered unfit for use in such work as carriage building could be made valuable by this means.

was current than the wholesome beer of the country, manufactured at Juneau."

Mr. Hallock gives an interesting account of the commercial fisheries, glacier fields, seal industry and other matters of interest and importance. The work is entertaining and valuable throughout; but we regret that

Eight new military aerostatical stations are to be established in France—at Belfort, Toul, Verdun, Epinal, Grenoble, Montpelier, Arras and Versailles—and within a short time every army corps is to be provided with a complete ballooning outfit and staff.

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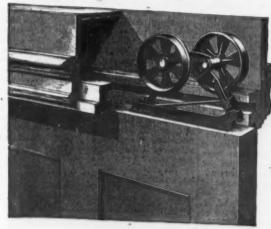


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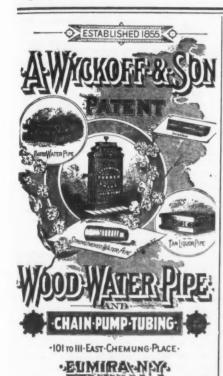
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Responsibility in Manufacturing.

An important railway, says the Railway Review, recently received some locomotives from a leading firm of manufacturers that were practically useless because of flagrantly careless workmanship. The inspector of the railway stationed at the locomotive works had passed upon and accepted the engines.

The question of legal responsibility might therefore be somewhat seriously complicated if the matter had been pushed closely to the line from both sides. But as to the moral responsibility there can be, of course, but one decision. and it is passing strange that any reputable firm, especially of the standing which a leading locomotive firm naturally occupies, should allow such work to issue from its shops. The matter will be made right, of course, but in these times of growing prosperity, of all others, the excuse for poor work is hard to find. In the hard times of recently passed months cheap car-wheels were turned out in large numbers. But the example should be doubly unworthy of emulation in other lines of railway supplies in these days of better times. The in-stance of which we speak was, we are sure from the information that we have, one of carelessness rather than purpose. We speak of it only to introduce an inquiry as to the of it only to introduce an inquiry as to the real need of relying upon inspectors to insure good quality in railway purchases. Why should it be necessary to have an inspector at a seller's shop? Why should not a contract with a reputable firm be left with that firm safely? Should it be necessary for the buyer to have an inspector watching every process in the manufacture of a rail or a car or a locomotive? Have we no commercial honor left among the manufacturers who honor left among the manufacturers who supply the equipment of our railways? Or do our railways so selfishly and foolishly beat down prices that manufacturers cannot supply honestly-made goods at the prices forced upon them !

Novel Bells.

There is always risk of failure in casting large bells; uncertainty whether the bell will be sound when cast, and liability to bell will be sound when cast, and hability to eventual fracture. The transportation of such heavy weights as bells of large dimen-sions in their destination, and the hanging of them when there, are always matters for serious consideration. It will be remem-bered what preparations were made and precautions taken for the transport of the precautions taken for the transport of the great bell to St. Paul's, and the difficulty of its hoisting and hanging; and now, being hung, it would be dangerous to swing its enormous weight—some 18 tons. It is of interest to note, therefore, that in England a bell has been invented which is claimed to obviate all these difficulties. This bell as we find it described, is not cast, but made of metal, bent or spun to shape. A bell may be made in several pieces and hard-soldered together. The peculiarity of the result, is that the bells give an astonishing volume of sound. A bell weighing but 3½ pounds gives quite as much sound as a cast bell of ten times the weight, and the tone is very pure and true. The and the tone is very pure and true. The vibrations last 25 seconds, and the overtones or harmonics are quite perceptible. The inventor guarantees to produce a bell weighing I ton which shall be as musical and as efficient as an ordinary bell of 20 tons. Various attempts have been made to use sheet metal for bells, but they have all failed hitherto; and the reason why the inventor has attained an unprecedented suc cess seems to be that he has hit on a peculiar alloy, which appears to possess some remarkable properties. It is well known that ordinary bell metal is hard and brittle. In been discovered by which a bell metal is produced which will be resonant in a very high degree, but admits of being bent. It bears, that is to say, about the same relation to ordinary bell metal that malleable cast iron. Although to ordinary bell metal that malleable cast iron bears to ordinary cast iron. Although the inventor, a Mr. Hoffman, of London, is confident that he can produce very large bells in this way, he has not made any, and it remains to be seen how far he will be successful; but he has done enough already to excite the interest and claim the attention of every campanologist.

forms of testing machines which they have brought out in past years. The larger of the two embraces 56 pages and measures about 11½ x 9 inches. It is of a descriptive character and is fully illustrated. The smaller catalogue is more in the nature of an illustrated price list and will prove of each process of the trade of the state of the smaller catalogue is more in the nature of an illustrated price list and will prove of each process. undoubted interest and value to the trade. It covers 44 pages and treats more particularly of the smaller forms of machines.

Steam Heating Boilers.

The Victor Heating Company, of Norwich, Conn., have sent us a neat catalogue devoted to the interests of what is known as the Victor heater, a boiler for low-pressure steam heating, especially adapted for heating dwelling-houses, stores, offices, greenhouses, &c. The catalogue embraces a railroad—about to miles long—from the The Victor Heating Company, of Noras the Victor heater, a boiler for low-pressure steam heating, especially adapted for heating dwelling-houses, stores, offices, greenhouses, &c. The catalogue embraces 24 pages and is fully illustrated with engravings representing sections and eleva-tions of the heater. Full descriptive particulars are also given.

Wood-Working Machinery.

Messrs. C. B. Rogers & Co., of Norwich. Conn., have issued a new catalogue devoted to the interests of their wood working machines. In this catalogue they have retained only such of their older machines as have by continued service demonstrated their value. and have introduced a large line of entirely new designs brought out during the past year. The catalogue covers 66 pages, and is profusely illustrated, illustrations and descriptive matter alike bearing evidence of careful attention. Among the machinery shown we note a flooring machine, planers and matchers, surface planers, hand planers,

molding machines, sash machines, gaining, mortising and boring machines and a large line of others.

The McCosh Iron and Steel Company, Burlington, Iowa.

The McCosh Iron and Steel Company have recently issued a catalogue giving de-tails as to the assortment of goods which they manufacture and which they represent. they manufacture and which they represent. Among them are bar iron, Norway and Swedish iron, Thistle brand steel, agricultural steels, steel-wire nails, rivets, nuts and washers, bolts, turn-buckles, chains and a long line of wrought wagon hardware. There is also a series of malleable iron, chiefly for carriage purposes. McCosh & Co. represent the Hawkeye Steel Barb Fence Company, and have for sale also a number of handsome patterns of wroughtiron fence pickets. We note among some of the other specialties carriage and buggy tops, wrought scrapers and wagon jacks.

Boiler Furnaces.

A circular just sent us by the Bridgeport Boiler Works, of Bridgeport, Conn., illus-trates the Lowe boiler furnace for hori-zontal tubular boilers. This furnace has been designed to prevent smoke and secure economy in fuel, and its general arrange-ment will be easily understood from the engraving which is given. Descriptive matter is also added.

Ide High-Speed Engines.

Messrs. A. L. Ide & Son, of Springfield, Ill., builders of the well-known Ide engines, have just issued a new and enlarged edition of their engine catalogue. It embraces 44 pages, and contains a large number of new cuts and particulars. General and detail views and particulars. General and detail views are given as in the old catalogue, together with valve diagrams, indicator cards, &c. Space is given also to illustrations and short descriptions of the Ide feed water heater and purifier and the Ide steam pump.

Roller Bearings.

A very interesting catalogue just issued by the Chaplin Mfg. Company, of Bridge-port, Conn., the well-known manufacturers of what are known as the Chaplin roller bearings, supplies information concerning these bearings, which, as some of our read-ers undoubtedly know, can be and have been extensively applied to machinery. The catalogue in question shows them applied to cars, buggies and road wagons in general, roller skates, bicycles, tackle blocks, sheaves, &c., illustrations being furnished in almost every instance which very readily explain the method of application.

Asbestos-Packed Cocks.

The Pratt & Cady Company, of Hartford, Conn., have issued a catalogue of their various forms of asbestos-packed cocks for steam, water, ammonia, gas, oil, &c. These cocks have been before the public for a number of years, during which time they have been found to yield very satisfactory results. The catalogue covers 24 pages and results. The catalogue covers 24 pages, and is profusely illustrated with engravings showing the different uses to which the company apply asbestos packing, and in nearly every case descriptions are given which will aid the reader in forming an idea of the nature of the device. Extensive price lists and tables of dimensions are added.

Water-Wheel Governors.

The Hartford Governor Company, of Hartford, Conn., have sent out a small cat-alogue in which they illustrate and briefly describe the Weaver differential governor for water wheels. Though only a general view of the apparatus is given, little difficulty will be experienced in understanding its function and arrangement, the different parts being lettered and suitably referred to in the text.

Copying Presses.

In a neat catalogue just issued by the Illinois Iron and Bolt Company, of Carpentersville, Ill., we find an extensive list of copying presses, press stands and attachments turned out by that company. Twenty different styles of presses are shown, and tables of gives and prices are given, which TRADE PUBLICATIONS.

Testing Machines.

Riehlé Bros., of Philadelphia, the well-known builders of testing machinery, have sent us two catalogues showing the various them to give every satisfaction within reasonable limits of pressure.

Steam Pumps,

The Hughes Bros. Steam Pump Works, Cleveland, Ohio, have issued a new cata-logue, illustrating and describing their different forms of air, hydraulic pressure, and steam pumps in general. The catalogue contains extensive tables of capacities of pumps, prices, &c., and supplies also illustrations of several different types.

in iron mines on the route propose to build a railroad—about 50 miles long—from the Wisconsin Central, near Winnebosh or Penokee, eastward to Lake Agogebic, Ontonagon County, Mich., or near to it, to carry ore to Ashland, which would pass over the Central for about 30 miles, and it will give the new line a rebate of 10 per cent. on its pro rata share of all earnings from traffic received from it, provided that it be completed within two years to the Colby Mines, at Bessemer. Wisconsin Central stockholders are invited Wisconsin Central stockholders are invited to subscribe \$1,500,900 for the new lines, receiving for each \$5000, \$5000 50 year 5 per cent. first mortgage bonds, \$1000 5 per cent. income bonds, and \$2600 in stock. The

New York, Thursday, September 23, 1886.

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The Rise in Raw Material.

The improvement in the value of silk india-rubber, wool and coffee which has taken place since January 1 is looked upon as an encouraging sign by all business men, and has led to a good deal of speculation in the articles named. Silk was the first to move upward, about the close of last year, a syndicate of Italian bankers having taken the precious fiber in hand at a moment when it ruled lower than it had ever done in the European market. The advance in it is just taking a fresh start. The consumption of wool, it has been found, has increased in a remarkable manner at the expense of cotton, and is outrunning production, leading to a genuine appreciation of some 30 per In india-rubber similar influences have been and are at work, the increased use of it being noticeable in this country even more than in Europe, while the supply is comparatively restricted. The coffee statistics are also favorable enough, but they hardly warrant such a rapid and extraordinary advance, due in a great measure to wild speculation, now setting in.

Owing to large crops some pro ticles have, on the other hand, receded in value, as, for example, cocoa and sugar, and, if we except hops, American products generally are worth about as much as at the beginning of the year, a few even lower. The following table will show the changes which eight months and a half have brought about :

L'ricca in New Lo	C Mary	
		Sept. 15.
Antimony, Cookson's	80,0934	\$0,00%
Coal, anthracite	8.50	8.50
Cocoa, Guayaquil	.16%	.1894
Coffee, fair Rio	.088	.1194
Copper, lake,	.1156	.10%
Cotton, middling uplands	.00 8-1	6 .0014
Flour, extra State	3.25	3.73
Wheat, red and winter, No. 2	.0134	.8734
Indian corn	.51	.5134
Hemp, Manila	.08	.0814
Hemp, Sisal	.04	.0514
Hides, Buenos Ayres, dry	.9914	.2154
Hops, choice State	.1112	.91
India-rubber, fine Para	.6162	.64
Black pepper	.1682	.1686
Sugar, fair refining Cuba	.0514	.0466
Tea, Oolong		.21
Tallow, city	.0476	.0414
Tin.,	20.60	21.80
Wool	.15	.18
Spelter	.0416	.0416
Tin plate, coke	4.50	4.40
fron. pig	18.35	18.95
Eteel rails	85.00	34.95
Lead	4.0014	4.70
Spirits of turpentine	.36	.8514
Iron nails	2.55	2.00
Nitrate of soda	2.42	9.1934
Petroleum refined	0734	0684

Whatever improvement there has been was confined for the most part to the prodnets of tropical and colonial countries.

competition is excessive in most of them, it lating fans, &c. Thus far it has been chiefly may take many months ere a general revival in the world's trade can benefit them. Moreover, in a few articles, like sugar, for instance, they compete with the tropical countries. But the profits which coffee planters and wool growers are and will be realizing alone suffice to give a great impulse to European and American exportation to the Transatlantic producing countries, and this movement of furnishing all sorts of goods, including luxuries, to populations that had been suffering for years from low prices, of itself constitutes an important element, and will, at any rate, powerfully co-operate toward bringing about a greater demand for manufactures of all sorts. While goods are very cheap in the producing countries, THE UNITED STATES, BRITISH AMERICA stocks in Transatlantic consuming countries have run comparatively low, importers there ordering little so long as the planting interest was engaged in an almost ruinous in-consumptive capability of the coffee and wool producing countries. An advance of 40 per cent. in coffee since January 1 makes a vast difference at a moment when the Magdeburg Steam Boiler Association, given results in every way satisfactory. the new crop is just commencing to be

> The change thus wrought, in one directrust it may inaugurate an era soon to subsiantially benefit all northern countries likewise. As the consumptive capabilities of northern countries and British India greatly depends on the size of cereal crops and the prices likely to rule for them during the campaign now opening, we subjoin a table showing the state of crops on September 1, 1886, 100 represening an average yield : Wheat, Rye. Barley. Oats.

Austria	1003	6 98	106	10734
Hungary	87	812	64	84
Prussia	95	87	97	102
Saxony	95	90	100	110
Bavaria, Franconia			400	
and Suavia	100	100	107	112
Upper and Lower	200	100	200	***
Bavaria	9/5	85	100	102
Palatinate and Wet-	90	Cn	100	1000
	88	70	88	110
teran			4 1 101	112
Baden	85	80	85	100
Wurtemburg winter	-			
wheat	.97	92	101	110
Wurtemburg sum-				
mer wheat	101	2.2		**
Mecklenburg	98	86	HD	85
Denmark	100	86	90	100
Norway and Sweden	90	85	95	96
Italy, South	80		45	45
Italy, Upper	125			100
Italy, Eastern	100			
Italy, Central	80	62		60
Switzerland	100	55		190
Holland	90	85		112
France	85	80	100	110
Great Britain and	OU	00	100	110
Ireland	75		95	98
Russia, Podolia	60	47	70	95
Russia, Bessarabia.	77			95
Punnia Deland		60 72	80	100
Russia, Poland	105		100	110
Russia, Central	55	55	75	100
Russia, Cherson	.60	90	120	120
Russia, Curland	75	75	102	102
Russia, Northern	85	70	65	65
Russia, Esthonia	97	888	77	57
Roumania, Mol-				
davia	85	90	90	90
Roumania, Little				
Walachia	90	90	68	70
Roumania, Great				
Walachia	84	105	90	198
Servia	90	85	83	107
Egypt	90		50	
wife 2 bec	00		00	
British India, when	34	1885.		1886.
tons		7,718,000		7,789,000
United States, when	.9.	1,120,000		1,100,000
h h h		357,000,000	49	5,000,000
United States, India		001,000,000	60	0,000,000
		1,986,000,000	1 01	000 000
corn, bushels		1,000,000,000	1.00	000,000,00

From this latest, and, we may say, conclusive, statement it will be seen that the wheat and rye crops on the Continent and the wheat crop in England are with few exceptions largely short of the average; that consequently there will be a good demand for American wheat and corn. Still the general supply will be ample enough to prevent a rise in prices so large as to cripple the consumptive capacity of the masses in Europe for other commodities. Hence the crops are not likely to be an impediment to a revival in general business on the other side.

While public attention has naturally been quickly attracted to the use of electric mo is quite as significant. When electric lighting plants were first established in our leading cities their promoters made much of the argument that the same currents supplypower, notably for small industries. The work of developing the business and improving the methods for lighting appears to have crowded out of sight the utilization of the current for power, and it is only recently, when the former does not exhaust all their energies that the companies, are turning to the latter. A good deal of progress has been made, however, within a brief space of time. Mr. T. C. Martin, of New York, in a paper read at the Detroit meeting of the National Electric Light Associa- ally interested rarely give a due amount of tion, estimated the number of small electric motors now in this country for industrial where special inducements are offered to purposes at certainly far beyond 5000. The encourage high efficiency, a saving of almost system followed seems to be generally to sell the motors outright, and to rent the current fireman over another, it is not difficult to either for a fixed sum per month, or other form some idea of the extent of the loss unit of time, or by meter. Thus, in Phila- which must occur in every-day working. delphia the charge for the current is \$5 per With increasing competition the cost of coal month for the first four motors, and then \$1 per month for each additional motor. In item of expense, and a careful consideration Boston \$125 per horse-power per annum is of circumstances directly affecting it is, to charged. In New Bedford, Mass., the local say the least, advisable. Edison company supplies current at lamp rates-1.25 cents per 16-candle-power lamp The northern countries are still waiting for hour. Already electric light-companies are chinery of nearly every description, com-an improvement in what they produce, and furnishing power for every conceivable pur-plexity of design has developed into what

and almost unlimited in many articles, and ing the means of running elevators, ventithe incandescent-light companies who appear to have gone into this business, there being some question whether, with the powerful currents employed in arc lighting there might not be some danger of rapidly burning out the motors. In one or two instances, however, special plant and a system of wires have been put up to distribute power to consumers taking from 1/2 to 100 horsepower each. The business is one capable of enormous expansion, and, now that activity in that direction has fairly begun, we may look forward to many and new applications.

Boiler Firing.

Several months ago we referred briefly to series of tests which were made in Germany last year to determine the influence of firing on the evaporative powers of steam boilers. Since then we have come into the possession of additional particulars, and take pleasure in presenting now more in ship. Marine engines have been designed detail some of the results which were ob- and built which, though it must be admitted, tained. The tests, it may be remembered, of not such large proportions and power as were carried out under the supervision of these, are of the utmost simplicity and have and only firemen of several years' practical experience were admitted to the competi- rally suggest the thought that simple forms tion. Each man fired a whole day, having of construction might easily and advantation at least, is a most happy one, and we inspected the coal, the boiler and its setting, and the only condition imposed was to maintain the steam at about a certain greater attention in future work. Complexpressure (45 pounds) in the course of ity in design means increased cost of conordinary working of an engine which was struction, greater difficulty of management supplied by the boiler. Three money prizes were offered for the three best performances under this condition, and both in point of fuel economy and smoke prevention. The manner in which the different firemen acquitted themselves of their work will be understood at once from the tables which we give. Table I furnishes the results of trials with bituminous coal, and Table II those where lignite was used. The fuel and feed-water were weighed in every case, and the water level and steam pressure were brought to the same point at the commence ment of each test.

The grate was rather too large for coa and too small for lignite, having been made so on purpose to see how the men would deal with somewhat difficult conditions.

	Table 1.	-Bitumin	Olla Colli	
Fireman.	Pounds of water evaporated per pound of	Average temperature of feed-water. Degrees	Average steam pressure. Almospheres.	Pounds of water evaporated per hour persequare foot of heating surface.
1 2 3 4 5 6 7 8 9 10 11	6.89 6.81 6.64 6.43 6.01 5.64 5.49 5.40 5.00 4.80 4.00	71.6 74.8 104.0 98.6 91.4 85.1 85.1 73.4 96.8 76.1 80.6	3.07 3.10 3.2 3.09 8.00 3.15 2.80 8.5 2.93 3.3 8.16	1.485 1.588 1.588 1.655 1.309 1.586 1.719 1.719 1.412 1.588
	Tabi	le II.—Lig	nite.	
1 2 3 4 5	2.32 1.83 1.78 1.57 1.50	84.7 74.8 86.9 72:5 74.5	2.5 2.80 2.00 2.30 1.80	1.178 1.178 1.094 1.980 0.819

The results throughout are exceedingly poor, a fact which may to some extent be explained by the circumstance that the boiler was set with one of the many patented furnaces brought out within late years, and which, notwithstanding the claims made for them, have often turned out to be complete failures. The furnace walls could not be made even approximately tight, and numerous air leaks vitiated the results. This, however, does not explain the otherwise re markable character of the figures. The main tors for propelling cars on city and suburban | conclusion to be drawn from the test records lines, another movement has been going on is clearly that even after several years of here likely to be followed closely, though it training there is a vast difference in the de grees of proficiency attained by firemen in utilizing the heat of coal. In the present case, it will be noted, among 11 firemen the best result obtained was the evaporation of ing light would be also used to furnish 6.89 pounds of water per pound of bituminous coal, while the poorest figure represented an evaporation of only 4 pounds of water, there being thus a difference between the highest and lowest of about 44 per cent-With lignite the corresponding figures were 2.32 pounds and 0.05 pound of water.

It is not necessary to comment at any ength on these results. They convey their lesson in too simple a manner to require explanation, and clearly point out a source of loss in steam raising to which those materiattention. If in a trial, as in this case, 50 per cent. in fuel can be effected by one in manufacturing becomes a most important

With the introduction of high-class ma-

sult, and the machine user of the present day has become accustomed to a mass of intricate detail which not so very long ago would have caused no end of criticism. In certain lines of machinery-as, for example, special machine tools—this rapid multiplication of parts has been the direct and unavoidable outcome of increased requirements of capacity, and is therefore entirely legitimate. In others, however, there seems to have been unnecessary refinement of practice, and it is highly questionable whether the results have always, or even in isolated cases, given that comparatively greater degree of satisfaction which was expected. In the field of marine engineering prominent examples bearing on this point will be found. The abundance of detail, the multiplicity of parts and the number and variety of special appliances are here often overwhelming, notably in the engines of some of the fast Atlantic steamers. though it does not follow that they are necessary or desirable in the propulsion of a Comparisons of such examples very natugeously have been adopted in all cases where they are now lacking, and should receive and greater cost of maintenance, and unless these can be offset by corresponding gains in economy, greater reliability and other features of importance it is clear what the tendency of engine builders should be.

The Outlook for Tin Plates.

In spite of the rise and subsequent fluctuations in the tin market, tin plates have been remarkably steady, and the present spring. The import into the United States during the fiscal year ended June last was the distributing centers out West were on the 1st inst. quite light, thereby proving that the country has at the low prices ruling absorbed without difficulty the excess of importation.

The fruit crop being ample this year, and leum continues to rule low, canning has were as follows:

"The three important advantages which are claimed from the employment of steel may be stated as follows .

"I. Economy in the waste which results in the conversion of bar iron into black plate.

"2. A reduction in the percentage of waster tin plates.

"3. A reduction in the weight of coating metal, resulting from the smoother surface of steel black plate."

While alluding to the changes of manufacture gradually brought about, the same gentleman drew the following short sketch, which it may not be out of place to recapitulate: "The modern process of manufacture being now so well understood, I think it will be sufficient for me generally to record the approximate dates of the several important improvements which have been adopted since a knowledge of the art came to England in 1665: but as the introduction of steel is of such recent date, and has so completely revolutionized the trade, I propose to examine this feature specially. In 1728 the introduction of sheet-iron rolling by Major Hanbury, of Pontypool, which was described at that period as the 'art of expanding bars by compressing cylinders.' In 1745 the employment of a grease-pot to warm and prepare the iron for receiving a coating of tin. About 1770 the application of pit coal as a substitute for charcoal in the manufacture of iron. In 1806 the substitution of vitriol for barley meal as a medium for pickling purposes. In 1807 Mr. Watkin George, of Pontypool, introduced the dandy fire as a preliminary process for the refinery, and the brick hollow fire as a substitute for balling. In 1829 Mr. Thomas Morgan introduced cast-iron annealing pots as a substitute for annealing in an open furnace. About 1849 the black pickling by vitriol was introduced as a substitute for scaling. In 1866 patent rolling, so called, of the tin plates as they leave the tin-pot was introprice is about the same it was early in the duced by Mr. Edward Morewood, of London, and Mr. John Saunders, of Kidderminster. In 1874 pickling machines were generally 254,956 tons, net, against 226,198 tons the introduced as a substitute for hand labor. previous year, yet this increase of 28,758 In 1875 the introduction of Siemens soft tons notwithstanding stocks in port and in steel as a substitute for charcoal iron. In 1880 the adoption of Bessemer steel as an equivalent for puddled bar iron. In 1883 the introduction of basic steel blooms from Middlesboro' in competition with Bessemer bars.'

The figures produced by him having that of lard, salmon, &c., fair, while petro- reference to the gradual increase of output

WOLRE GXISTING ID	1750	1800.	1895.	1850,	1860.	1805.	1870.	1875.	1885.
Glamorganshire	- 9	2 4 2	6 2	8 11 8	1:2 12 4	15 12 5	19 15 8	97 16 14	44 90 17
Staffordshire		**	1	7	7	8	9	9	6
Worcestershire	dun		1	18	- 2	- 8	- 8	8	25
Gloucestershire	0.0	0.0	1	1	1	1	1	1	2
Scotland	0.0	**	0.0	* *		1	1	1	2
Herefordshire		1	1	1	1	1	1	1	1
	0.0				0.0		1	2	
Cumberland		1	1	1					
Total	4	9	16	34	40	47	59	78	96
						6,896,30 530,46 132,6	00 31 15	21	e mill. 1,550 1,658 414 60

been and will be carried on as vast a scale | Adding stocks, he calculates actual absorphas probably picked up sufficiently during table : the summer to compensate for the interruptions and drawbacks that hampered it in the spring. Whichever way we may therefore look the outlook is most promising, so far as a continued large consumption of tin plates is concerned, the more so as the price is low enough to stimulate consumption and even lead to the anticipation of requirements, as the present demand for "futures" indi-The distribution of tin plates abroad from Wales was last year as follows:

	Boxes.
United States	
Canada	309,460
Mediterranean and Black Sea	255,315
Holland, Germany and Belgium	202,780
Norway, Sweden and Baltic	125,440
China and British India	
France and Switzerland	100,500
Australasia	137,918
Spain and Portugal	98,575
South and Central America	
West Indies	112,896
North Africa	8,760
Sundry other countries	8,962
Candi J Candi Count Res	0,000
Total	5, 280, 536
Home consumption	
Total consumption	7,080,586

In other words, the United States took last year 54 per cent. of the entire output. In a paper recently read by Mr. Philip W. Flower, of Neath, before the British Iron

and Steel Institute, that gentleman remarked with reference to the gradual substitution of steel for iron in the manufacture

"The surface of the steel tin plates was always found to be sufficiently smooth and good, but violent and apparently capricious variations in toughness caused the plates to he unfavorably graded by experienced dealers, and the trade for several years had to be forced at a lower price than for charcoal. This preliminary irregularity, however, was gradually surmounted, and as gradually the trade expanded, until in 1880 the Landore Company were sending out 600 tons of bars effect in other sections of the country. It Landore created a revival of the Elba and to some waste of money in that way. Works, near Swansea, about 1878, which But it has, too, taught manufacturers to con was followed by the construction of 10 new furnaces in South Wales:

as it ever was before. The building trade | tion during the last two years in the following

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Production, Export and Home Consumption of Tin Plates for the Two Years Ending December 31, 1884 and 1885.

)		Jan. 1 to 1885.	Dec. 31,-
ķ		Boxes.	Boxes.
	Exported from Liverpool	2,496,449	2,804,749
	Exported from London	427,298	426,698
ĺ	Exported from Swansea	1,809,166	1,811,665
	Exported from Bristol	455,830	203,888
١	Exported from Newport and		
	Cardiff	41,883	280,914
	Exported from Glasgow	5,717	4,881
	Exported from Southampton		10.00
	and Weymouth	45,067	60,251
	Exported from Hull	7,218	7,806
	Exported from Newcastle	1.958	2,494
	Exported from Newhaven	4 000 000	
	Home consumption	1,850,000	1,882,826
	Stocks at all ports Dec. 31	293,244	241,880
	Totals	7,878,780	7,195,907
	Stocks January 1	241,800	299,807
	Production of 1884 ex 330 mills, each producing 21,550 boxes	***,	499,007
	per annum		6,806,000
	Production of 1885	7,18001,9	**
	Totals	7,878,780	7,195,907

The upward tendency in England in steel and its manufactures has at present a greater bearing on the cost of tin plates than any further advance in tin or coal.

The comparatively small use of tin plates for canning purposes in tropical countries and the Levant seems to us well calculated to cause surprise, the more so as in the West Indies and South America fruit is even more abundant and cheaper, if possible, than in this country, and the preserving of the same extensively practiced. The only explanation for it must be looked for in the fact. we believe, that glass, earthenware and wood are resorted to instead of tin plates.

The rapid extension of the natural-gas territory west of the Allegheny Mountains, and the many incidental advantages which its employment has brought with it in a number of leading industries, have had its The successful manufacture at has of course led to considerable drilling sider more readily plans for the utilization of bituminous slack coal and anthracite dust in the generation of producer gas.

well to look into the use of producer gas. They can reduce their fuel cost and need not fear the claims of those who have secured better quality of product by the introduction of natural gas

Immoral Business Methods.

Some months since Sheffield was agitated by serious charges publicly and specifically brought against some of its manufacturers and merchants. It was insisted that cheap, inferior German goods were bought by them, and after being stamped, labeled, packed or mounted in close imitation of Sheffield articles they were sent out as goods made there, in many instances being designated as being best quality. The corporation of Sheffield was forced to take up the matter, placing its investigation into the hands of a committee. The latter, after thoroughly going over the ground, have reported that the charges have been sustained. The following sentences from this report will convey some idea of the magnitude of the evil:

In the judgment of this committee the practice of putting labels on goods manufactured in Germany, intimating that the same are from or man-utactured by Sheffield firms, exists to a large ex-tent. * * The practice of putting labels on parcels of Sheffield goods, denoting them to be of different description and quality to what they really are, exists to a considerable extent, and is doing much injury to the trade of Sheffield. • • • In numerous cases in which corporate or trade narks have been granted by the Cutlers' Company, such marks have been sold by the person to whom they were originally granted, and are now used by the purchasers for the passing off of German goods of inferior quality. The use of these corporate marks in this manner is calculated to deceive persons into the belief that such goods are of Sheffield manufacture.

The British Trade Journal, in reviewing the evidence collected by the committee. points out some of the most glaring cases of

ticles as scissors made of common cast iron are old as best steel. Table knives the blades of which have simply been stamped out of Bessemer sheet steel are branded as silver steel or shear steel, and, made up with forks of common cast iron are sold to the public as "cutlery of best Sheffield manufacture." German goods of the same character have been imported by Sheffield uses and then sent out marked with English marks or wrapped up in parcels outside of which were English labels, or mounted on cards on which were printed statements to the effect that the cutlery on those cards was best Sheffield and ad been made in Sheffield.

Some of the offending traders and manufacturers followed the summons of the com mittee to testify before it. They fully admitted that they had done business in the manner charged, but they believed it to be a justification of their course that those who bought from them were fully aware of the character of the goods which they were purchasing. That is to say, a number of distributors of this class of goods are the accomplices of the Sheffield merchants. They attempt to share with them in the profits obtained by selling to a consumer at he price of a standard article goods much inferior in quality. Nor can it be pleaded that the consumer wants a cheap article. The wrong lies in the deception practiced, and is not righted by the fact that all, from the manufacturer down to the smallest retailer, enter into the conspiracy. We know that this class of goods has come to this country in large quantities, and it has resulted simply, as it inevitably must, in destroying the faith of buyers in the quality imported goods, and in causing them to turn with growing confidence to article of American manufacture, since all interested in the trade in domestic wares must look to the future. Manufacturers, jobbers and dealers cannot afford to sacrifice the good-will of customers for temporary gains, however tempting they may be.

From England come the first indications of to uneasiness of labor which may possibly develop into a more general movement. The principal factor leading to it, if we may judge from our own experience, will be the anxiety to foster the first signs of improvement by encouraging talk, notably in the newspapers. Distorted and exaggerated accounts will come to the workmen from all quarters, and may result in a determination on the part of the men to share in these bene-We know that the purchases from this side have led to slightly higher values in the steel trade, and with wages screwed down to the starvation point it would be not at all surprising if the English masters would have go through a period of strikes as soon as the tide has fairly set in the direction of an

English guns and English man-of war engines alike have shown themselves to be far from creditable to their designers and constructors, and for several years past every new trial has developed defects of the most serious character. The latest addition to the already long list of break-downs in the havy is found in the case of the twin screw dispatch boat Phaeton, particulars of her latest trials having come to hand a few days azo. During one of the runs, while the engines were being driven at comparatively slow fractured. The defects having been made good, another trial was ordered, but before pressure cylinder was considerably more the rate assessed as a casting of iron.

they think the exceptional advantages of fractured than the high pressure cylinder at those of their rivals who are blessed with the former trial. Examination showed that an ample supply of natural gas would do in addition the piston-rod was broken inside the cylinder, the break being as clean as though the rod had been cut with a knife. Owing to the secrecy practiced by the British Admiralty the results of the investigations are not known, and it is not probable that particulars of a very damaging character will be allowed to leak out. Taken altogether, however, there is sufficient evidence to show that British machinery and British practice in this line of engineering in general have been very highly overrated. There is a limit to experience on which enterprise in machine construction may be safely based, and this the British authorities have evidently ignored. Adding to this circumstance the influence of structural defects, it is not difficult to explain the disastrous results which have been experienced. Distrust of the engines in the navy has apparently gone so far as even to effect a reduction, in some cases from six to three hours, in the duration of full power trials of the vessels The inferences to be drawn from all this are not flattering. English papers do not disguise the facts, and one of them, the Engineer, significantly remarks that "the fullspeed power of most of our ships, as stated in Parliamentary reports, is from 25 to 30 per cent. higher than that at which it is safe to work their engines." We note that according to latest reports, moreover, the this is not the case. The cause of the 106 machinery of another British war ship has breakdowns may be thus classified: 4r per come to grief. Of this, however, nothing come to grief. Of this, however, nothing definite is yet known.

WASHINGTON NEWS.

(From Our Regular Correspondent.)

WASHINGTON, D. C., September 21, 1886. The last of the 8 inch guns for the steel cruiser Atlanta has been completed at the Washington Navy-Yard, and has been shipped to the naval proving ground at Annapolis to be tested. These guns have thus far given complete satisfaction. The battery of the Atlanta consists of two 8 inch guns en barbette, throwing a 250-pound projectile. en oarcette, throwing a 250-pound projectife miles with 125 pounds of powder, and six 6-inch broadside guns. The second battery consists of two 6-inch and two 3-pound Hotchkiss high-power guns; two 1 pound light-power Hotchkiss; two 47 mm. and two 37 mm. Hotchkiss revolving cannon. If the gun to be tested proves without flaw the Atlanta will be fully conjuged and ready. the Atlanta will be fully equipped and ready for sea in a very short time. Captain Bunce in reporting the trip of this steamer from New York to Newport says she made II knots an hour easily and her engines worked very successfully.

TRANSFER OF THE WASHINGTON NAVY-YARD The official order of the Secretary of the Navy in reference to the transfer of the navy-yard for ordnance work, just is-sued, says: "The demand for increased facilities for constructing the batteries required for the armament of additional ships of war, now provided for, makes it necessary to reassign the shops and buildings of the Washington Navy-Yard. All the shops. machinery, tools and appliances assigned for the use of the Bureaus of Construction and Repair, Steam Engineering, Yards and Docks and Equipment and Recruiting will therefore be turned over to the control of the Bureau of Ordnance on the first day of October, 1886 Such of the machinery, tools and appliances as may not be required by the Bureau of Ordnance will be trans by the Bureau of Oronance will be transferred to stations where required by other bureaus, or otherwise disposed of as found best for the public interest. The quarters now occupied by the representatives of the bove named bureaus will be vacated October I.

PREPARATIONS IN THE NAVY DEPARTMENT. The Acting Secretary of the Navy, Commodore Harmony, has issued instructions to Bureaus of Construction, Steam Engineer ing, Employment and Ordnance in anticipa-tion of possible failure to receive proper bids from private parties to prepare plans for the two seagoing, double-bottomed, 6000-ton armored cruisers authorized by act August 3. The chiefs of these bureaus are directed to commence this work without delay, so as d to cons the yards of the Government if no suitable plans are offered. In accordance with these directions the chiefs embraced in the instructions have already commenced on their plans, and expect sho their work in a satisfactory state of forwardness. The department is now in possession of drawings of the finest armored vessels of war affect, and proposes to make designs which will combine the best features of naval architecture of other nations with improvements which have been suggested by experience in the working of these vessels in service, and by careful study of their de-tails of construction This will bring the ideas of naval officers upon the needs of the service in this class of vessels into competition with private contractors, and may re sult in dividing the work, giving one vesse! to a private yard and building one under the anenicas of the Government. The time for construction of these armored vessels will be between two and three years.

DUTY ON MOLDING SAND.

The Treasury Department has instructed the customs officers, in regard to certain Canadian molding sand claiming entry free, that under date of the 16th of July, 1884. the department decided that as molding sand is not specified in the tariff acts, either by name or otherwise, and as it is a crude sub stance, it is dutiable at the rate of 10 per cent. ad valorem.

PLATFORM CAR, TURN-TABLE, ETC. On an appeal from 21/2 cents a pound duty on a platform car and 1% cents a pound on a turn-table, the department decides that eed, the high-pressure cylinder cover was platform car is a completed article, combectured. The defects having been made cod, another trial was ordered, but before a casting of iron taken solid out of the mold could be recovered by the special country of the mold could be recovered by the special country of the mold country much progress had been made the low- and intended for turning cars, is dutiable at

DUTY ON OLD COTTON TIES

Iron bands of domestic manufacture exported as protect ons for bales of cotton, which are cut from the bales in the foreign country and are returned to the United States in the condition of old scrap iron, are not entitled to free entry as manufactures of the United States exported and returned, because they are not returned in the same condition as exported.

Steam-Engine Breakdowns.

Referring to Mr. Longridge's annual report for 1885, as engineer to the Engine, Boiler and Employers' Liability Insurance Company, England, the Engineer, London,

The report contains a great deal of inter sting information, such as can be obtained nowhere else. The company, as no doubt nost of our readers are aware, insure engines as well as beilers, and Mr. Longrilge has therefore excellent opportunities for learning how and why engines break down. He has to record no fewer than 106 failures luring 1885, while 795 occurred during the ast six years. This is a very large number, and most steam users will agree with us that it might be reduced with advantage. It is very often assumed that a breakdown is always the result of carelessness on the part of the attendant, or of neglect from parsimoniousness or other reasons of the owner to get repairs done in good time; but Mr. Longridge's figures go to show that or unascertained, 13 to old-standing defects and ordinary wear, 30 to weakness or bad design, and only 16 were attributable to the negligence of the owners or their servants. Out of the whole 106 no fewer than 24 were failures of spur gearing, and we may put these on one side as not belonging properly to engine failures. Of the rest we that valve gear gave way frequently and that air pumps gave still more trouble. In 11 instances the gear for driving the air pumps broke, and in 12 cases the buckets or valves failed. One "total wreck" is recorded, but the cause was not ascertained; in five instances the crank-shafts broke. It will be interesting if we examine more closely a few typical examples from the

many particularized by Mr. Longridge. The eccentric-rod of a beam engine was broken because the engine man had ne-glected to oil the slide-valve. For a similar reason one of the eccentric-rods in a pair of horizontal compound engines was broken. In another pair of tandem engines a sidevalve spindle and one rocking shaft pedestal were broken from the same cause. In a beam condensing engine the eccentric-rod was broken in the same way. These facts throw a good deal of light on the enormous frictional resistance of slide-valves, and show how dependent they are for proper working on lubrication. This is especially the case when steam dry and of a high pressure is used. Some of the failures re-corded by Mr. Longridge are very curious, Thus, a horizontal tandem engine was broken down by a lump of hard grease; the cylinders were 23 inches and 43 inches diameter and 5 feet stroke; the engine made 65 revolutions per minute; the power was given off by a spur-wheel 9 feet in diameter with teeth 14 inches broad and 31/4 inches pich, both the wheel and pinion being covered by a sheet-iron guard in the usual way. "The grease," says Mr. Longridge, "used for these wheels must have been very hard, or there must have been some hard substance in it, for in applying it while it may be mentioned that one of the com-pany's inspectors, when making his periodical inspection of another insured engine fou d an indentation on one of the teeth of the spur wheel which could not be accounted for by any one at the mill. On inquiry be ascertained that the manager had given accoming brought about but a comparative orders to clear all the old grease out of the economy brought about but a comparative wheel-race and to use it over again. From small proportion of the breakdowns recorded, the inspector inferred—and his inferthis the inspector inferred—and his inference is probably correct—that a small piece contact with a tooth of the pinion, causing the indentation. As it happened, the teeth were strong enough and the clearance suffi-

use of old grease from the wheel-race. In another instance there was a very thorough smash-up of a condensing beam engine with a cylinder 30 inches diameter and 5 feet stroke. This breakdown occurred about noon, without warning and without apparent cause. The inspector, on arriving ortly afterward, found the beam broken in front of the main gudgeon, the connecting rod end, together with part of the con-necting-rod, lying at the bottom of the foundation, having carried away the floor. The other part of the rod, with the exception of a small piece which remained attached to the crank pin, was jammed across the open-ing in the floor. The fly-wheel and drivingwheel were lying in pieces at the bottom of the wheel race, even the boss of the former being broken; in fact, nothing was left on the shaft except the crank. The spring beams had broken, and the floor of the beam chamber was pulled down. The cylinder bottom was broken; no cause could be assigned. Mr. Longridge thinks it possible be that the beam broke first, possibly beflowing over into the cylinder from the coning rod, crosshead, air-pump connecting rod denser. The engine had been slowed down, boken and piston-rod bent. Cause of fail-

breakdowns occurred to air pumps and their started a fracture at each side of the shaft, crease in gear. Several of these were due to neglect. in the line joining the centers of the shaft natural.

gent examination. Air pumps, buckets and valves are perhaps more liable than any other parts to get out of order, and yet they corrosive nature of the water in which the rods and buckets often work, it must be if damage is to be prevented. The cham-bers in which the pumps are placed should be kept as clean as other parts of the enginetoo filthy for any one to enter without a change of clothes. They should be made accessible by permanent staircases or ladders and flooring, and should be well lighted, if possible by daylight, and if not, by gas. If this were done many of the difficulties of making a proper examination would be removed and breakages would certainly be fewer. It is also recommended that metallic packing for buckets should be abolished. It is both a useless expense and a source of danger. A plain brass or iron bucket about 12 inches deep when the water is free from 12 inches deep when the water is not be sediment, or one with wood lagging when it is gritty, will answer every purpose, for it is not necessary that an air-pump bucket should be tight in the same sense as a

Mr. Longridge very properly urges the u-e of proper curves and fillets in all cases where the diameter of a shaft or rod suddenly changes, and he particularly insists on this when steel is used. Indeed, it is easy to see that he is not specially enamored of steel—Bessemer steel, at all events. He mentions one instance where, a crank-shaft having broken, it was replaced by one of Bessemer steel, against his advice. There was a slight change in diameter where the

crank was put on. There was no fillet, the change being made abruptly. The result was that a crack commenced at the corner and ran into the bearing, which it caused to heat, whereby the engineman's attention was attracted, and the mischief discovered was attracted, and the mischief discovered before the crank dropped off. The shaft was 5½ inches in diameter in the journal and 5½ inches in the crank-seat, so that the shoulder was only ½ inch diameter, a quantity which might have been accepted as too small to do any harm. Mr. Longridge also gives particulars of the breakage of a crank-shaft in the case of an uninsured Corline condensing engine with a ceilinger of liss condensing engine with a cylinder 40 inches diameter by 5 feet stroke. The main shaft was of Bessemer steel 15 inches diameter in the neck, swelled to 151/2 inches at the end to receive the crank, which was held by a steel key after having been forced on to the shaft, probably by hydraulic pressure. The keyway in the shaft extended the full length of the swell, and was cut perfectly square in all the corners. The fracture which led to the destruction of the shaft commenced The fracture which at the inner end of this keyway and ex-tended across the shaft, partly within the crank and partly through the neck, and on one side branched off parallel to the axis of the bearing. The final fracture appears to have taken place as the crank passed the outer center and when the piston was commencing its return stroke; the latter being thus freed was driven against the back-end cylinder cover, smashing it and also the cylinder. The engineman was found dead near the engine house door, having either been killed by the shock or suffocated by the steam. At the coroner's request Mr. Longridge made a report upon the accident, attributing it to intense local stress at the substance in it, for in applying it while attributing it to intense local stress at the the engine was at work a lump was corner of the keyway, produced by sudden corner of the keyway, produced by sudden change of form in a material which, whether ifted the cover off its fixing. The cover dropped upon the wheel and was torn to pieces. Both wheel and pinion were smashed, the boss of the wheel only remaining on the shaft. In connection with this breakdown ridge has obtained particulars of no fewer ridge has obtained particulars of the corner of the corner of the keyway, produced by sudden corner of the keyway. than 64 breakdowns of uninsured engines. In 17 cases the main shafts gave way, in 12 the spur gearing was smashed, and in four the engines ran away and the fly-wheels were smashed to pieces.

It is impossible to read this report without

ried round by the wheel until it came in positive neglect and supineness. An engineman may do his duty so fairly well that it is impossible to find fault with him, while his performance is so far from perfection that were strong enough and the clearance sufficient to allow the piece of iron, or whatever it is equally impossible to praise him with it was, to pass through without further damage. But the experiment is not one to be repeated with impunity, and it therefore seems well to mention it as a warning to mill managers and enginemen against the word "necessary" with a certain degree of latitude which leads to bad results. The very fact that the cause of a large num-ber of breakdowns was unknown seems to us to be evidence of want of vigilance on the part of some person or persons. Take, for example, No. 21 in Mr. Longridge's list. "Beam condensing, wrought-iron crank-sha't broken off close to the fly-wheel boss cause of damage not ascertained." Now, is an almost unheard of event for a wrought iron shaft to break without giving dence of weakness beforehand. We nothing here of a latent flaw, and it is hard to resist the conclusion that if the cap been lifted and the crank examined with care a crack would have been discovered. Every crank-shaft ought to be stripped and examined once in three months. The opera-tion does not take long, and will go far to secure the owner of the engine against a bad accident. Of course we are here referring only to shafts of some size, say over inches in diameter. Again, take the fol-wing: "No. 8, horizontal condensing en lowing: "No. 8, horizontal condessions wrought-iron crank-shaft, crank ble that the beam broke first, possibly because of water in the cylinder; but this is bolts, slide-bars, 18 cylinder-cover bolts,
only an assumption. In another instance a gib and cotter for air-pump connectingsmall vertical engine was snashed by water rod, and two air pump slide bars, connectbut the injection-cock was left full open.

We have said that a large percentage of to body of shaft. The square corner had The square corner had

Of no fewer than six breakdowns Mr. and crank-pin. These fractures had ex-Longridge says: "All these breakdowns tended through the shaft in a direction at would have been avoided if proper care had right angles to its axis, and were within 2 been taken, for they all arose from defects inches of meeting when the shaft broke. Owing to the position and direction of the

other parts to get out of order, and you have been discovered. We will not passed are frequently the most neglected. When this line of argument further. If breakdowns are to be avoided vigilance must be disclosed in looking for premonitions of displayed in looking for premonitions of failure; and we may rest assured that steam users will best consult their own interests if evident that special vigilance must be used they make it worth the while of their engine men to discover and report the existence of any defect which, if not remedied. lead up to serious consequences. instead of being, as they often are, by for any one to enter without a site course, and discourage their men when they manifest any tendency to make what are very much miscalled "complaints."

The Lartique Elevated Railway.

Several years ago we described briefly an ngenious system of elevated railway in-cented and worked out by Mr. Lartigue, a French engineer. In view of recent developments with it, however, further details are of interest. The main feature of the system, as may be remembered, is that the line is laid with a single central rail, and is eleva ed only in the sense that this rail is not laid directly on the ground, but about 3 feet 4 inches above it. The line itself consists of a rail of light section which is carried on the top of a series of wrought-iron A-frames or restles, the feet of each frame being secured to a light channel-iron sleeper. The trestless are occasionally and where necessary tied in with wrought-iron diagonal bracing placed in the plane of the railway. A short distance from the ground small guide rails are fixed to the sides of the A-frames so as to project aterally to the right and left of the central This completes the railway proper which is provided with crossings and other constructive adjuncts of a very simple char constructive adjuncts of a very simple char-acter where necessary. In cases where steep gradients have to be ascended a rack rail is laid alongside the main rail, and where the line has to be carried at a considerable elevation above the ground level timber trestles are used, rivers and ravines being spanned also by timber structures. Lines thus constructed are at work in Algeria in connection with the esparto trade, where they are worked by mules, and also at the mines of Ria, Pyrénées Orientales, where electricity supplies the motive power. In order, how-ever, to approximate the system more closely to that of the ordinary steam-worked railway M. Lartigue secured a colleague in M. A. Mallet, who designed a locomotive for working the single-rail system.

To realize the manner in which the traffic is carried on this system it will be well here to state that it is, so to speak, hung across the railway, just as panniers are hung on mules and the thellis on camels. It was, in fact, the sight of a caravan of camels followrace, the sight of a carryan of camels following each other in a long string and laden with the thellis, a kind of wallet which hangs down on each side of the animal, that suggested the single-rail system to M. Lartigue. The locomotive designed by M. Mallet for working the line consists of two vertical steam being a placed on so neach side of tical steam boilers placed one on each side of the line and connected together by pipes. The two cylinders are placed horizontally, and with the boilers and driving gear are carried in a framing. The whole is hung on two coupled grooved driving-wheels I foot 9 inches diameter, which run on the rail proper. On either side of the engine and near ground level are two horizontal pulleys, which take into the guide rails on the sides of the Aframes already described, and which prevent the machine being thrown equilibrim by accident or by centrifugal force when going round curves. In its normal condition, however, the engine as well as the rolling stock is balanced. as well as the rolling social is balanced. In order to assist traction on steep gradients an auxiliary apparatus is attached to the engine. This consists of a small steam cylinder working a spur-wheel which gears into the rack placed beside the main rail, and to which reference has previously been The locomotive is fitted with a made. powerful hand brake and with the Westinghouse continuous automatic brake, which is also applied to the rolling stock generally. The cars are of various kinds, some open and some closed, the passengers sitting back to back. The freight cars are similarly constructed, and all are fitted with central buffers and drawsprings and the usual rolling stock details. They are each hung on a pair of vertical grooved wheels, similarly to the locomotive, and have a pair of horizontal pulleys work-

ing against the guide rails. The Lartique system, we understand, has recently been practically established in London. There a permanent passenger line and a portable line for military, agricultural or industrial purposes. The permanent system is illustrated by two lines, one of which is practically level and is used for demonstrating the speed of the train. The other is an irregular line with curves of as small a radius as 49 feet, and with gradients as steep as I in 10, the united length of the two lines being 1540 feet, each being of about the same length. The latter line de-monstrates, on the steep gradient of 1 in 10, the use of the rack rail and auxiliary dri-On this line also is a wooden ving gear. viaduct 340 feet long, with steep gradients and sharp curves, and it also includes a bridge of 33 feet span, where it crosses an-This is the first demonstration of the system as worked by steam, and is pronounced a success.

Not only have locomotive cylinder diameters increased within the past few years, but pressures also have augmented. They have risen from 120 pounds, which was considered high not so long ago, to 150 pounds, and in some boilers 175 pounds are now carried. These things all mean more weight. because the boiler must be heavier, and parts of the engine must be increased in dimensions to bear the additional strain. Under such circumstances the constant increase in the weight of locomotives is but

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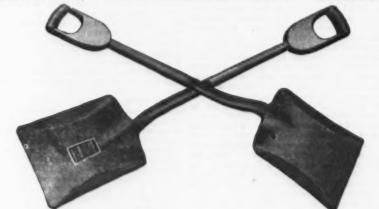
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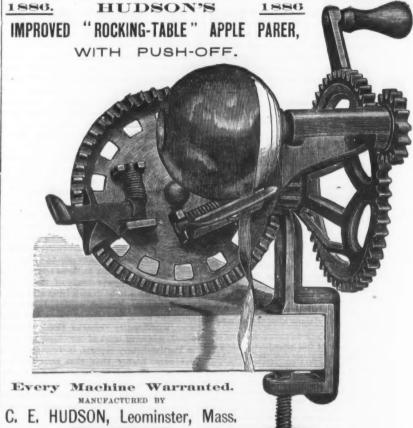
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A LARGE HARDWARE AND STOVE BUSINESS for sale, located in the best town of \$0.000 to habitants in the Middle states. The business is well established, growing and profitable. A live party with from \$20,000 to \$100,000 would find this a rare opening. Reason for selling, failing health.

Address "PAYING BUSINESS," Office of The Iron Age, 66 and 68 Duane St., New York

at reduced figures, having changed our patterns:
25 bundles No. 14 Steel Plates, 4 in. wide,
25 " 14" 5 in. "
25 " 15" 15 in. "
26 bars 54" 3 in. "
10 bundles " 6 in. "
24 Corrugated " 15 gauge, 30 in. w
Also some Steel Scrap. Apply 29 Rose Street.

FOR SALE.

One Reihlé Bros. Patent Furnace Charging Scale.

Fairbanks Furnace Charging Scale.

Duplex Worthington Steam Pump 10 X 12 X 6.

No. 3 Knowles Steam Pump.

All in good order.

WM. FITZSIMONS, 626 Rroadway, Cleveland, Ohio

Wanted.

A party to buy patents, or build on royalty, some thew Agricultural Tools (seed drills and cultivators made of from mostly. Tools are novelties and will pay. Address E. C. ELLWOOD, Greens Farms, Conn. WAN ED. -- A position as Furnace Manager or Assistant Superintendent, by an experi-enced and educated man. "CARBON," Address

Office of The Iron Age, 66 and 68 Duane St., N. Y. WANTED.—A map of 15 years' experience in the Hardware busin-as d-aires a position with some Eastern manufacturer or Jobbing House. First-class references.

Address "C. A. R.,"

Care Lord & Thomas, Chicago.

Special Notices.

Second-hand Machinery in Good Order. For Sale Cheap. MACHINERY, SECOND-HAND AND NEW. ON HAND

No. 52 Ferracute Free.
10 Foot Presses, assorted.
2 Power
2 Punching and Shearing Machines, assorted.
2 Return Tubular Boilers, 55 H.-P.
2 Vertical Bol-r, 34 H.-P.
3 Holsting Kngines, 5 and 10 H.-P.
3 Smail Hand Miller.
4 Horisontal Engine, 10 H.-P.
4 Die Staking Machine.
5 Ur ricel Engine, 10 H.-P.
5 Die Staking Machine.
6 Die Racher Hammer.
6 Lib. Bracker Hammer.
6 Lib. Bracker Hammer.
7 12-10. Shaper, 2 Tebles.
8 Botts.
1 No. 4 Baker Bicwer.
2 Suspension Drill.
2 Screw Presses.
8 Rogers Wood Planer, 24 in. x 5 in.
1 Valve Miller.
1 Valve Miller.
8 Bolt Cutter, with Taps, Dies and Hobs, 1/4-ing

I Valve Miller.

1 Bolt Cutter, with Taps, Dies and Hobs, 34-inch to s-inch, Incl. Wm. Seliers & Co.

Also full line of New Machiner;
New York Agency TAYLOR MFG. CO., Engines,
Boilers, &c. Correspondence solicited.

PRENTISS TOOL AND -UPPLY CO.,
P. O. Box 3362, No. 42 Dey St., New York City.

For Sale.

Foundry, 100 x 40 ft, and Machine Shop 60 x 20 ft., both with water privilege; also Japan and Packing House 62 x 22, Stove Storehouse 50 x 14 and Storehouse and Box Shop 30 x 20. All in good repair and running order; five minutes from steamboat and ten minutes from two railroad

WILLIAM KEIGHLEY'S EST ..

Middle Haddam, Conn.

FOR SALE.

Large lot second hand Iron Tanks, all sizes and shapes, from 5000 gals, down, and lot new 100 gal. Oil Tanks with pumps, all complete. Patterns for Rolling Mill Shears complete. Lot of Bolier Shelis, different sizes. Cast Iron Kettles, cheap. Becon i hand Engues and Boilers, cheap. Wrought and Cast Scrap, Red and Yeilow Brass, Copper, Lead and Zinc. BUSSENIUS, CUNLIFF & 4.0., Dealers in Scrap iron and Oid Mesals, 12th and Washington Ave., Philadelphia.

FOR SALE.

BAKER BLOWERS, Nos. 4 and 5.

HOOT BLOWERS, Nos. 1, 2, 4, 5 and 7.

SIURTEVANT do., Nos 2, 4 6, 7, 8 and 9.

RIDER HOT-AIR PUMPING ENGINE, no-inch.

GAS ENGINE, 1 Horse Power. Careful attention
given to purchasing for parties out of the city.

Correspondence solicited. C. R. BIGELOW, M. E.

45 Dey St., N. Y. City.

For Sale, Machinery.

Heavy Geared Milling Machine. New, \$450.

16 in. x 6 ft. Engine Latho #200.

16 in. x 9 ft. #225.

174 in. x 9 ft. #240.

20 in. x 8 ft. #275.

20 in. x 8 ft. #275.

20 in. Back Geared Drill Press, heavy. New, \$150.

Suspension 2.1. New, \$150.

Shapers, Planers. Chucks and Tools. Prices low.

AMERICAN TOOL CO., Cleveland, Ohio.

Cash Advances Upon Iron.

PENNSYLVANIA WAREHOUSING AND SAFE DEPOSIT CO.,

Girard Building, 3d St., below Chestnut, Philadelphia. This Company is prepared to establish yards throughout the iron regions at small cost, and to make advances at moderate rates of interest.

F. R. PEMBERTON, President.

JOHN MASON, Jr., Treas. and Secy.

GEO. H. EARLE, Jr., Solveito Directors.—Clayton French John H. Converve, John H. Catherwood, George T. Lewis, John W. Hoffman, Edmund H. McCullough, F. E. remberton.

Wanted,

a first-class business man with \$5000 to \$10,000 capital to assist in organizing and to take charge of the business affairs of a stock company in a live and growing Westers city. The business is that of a Foundry and Machine Shop, now conducted by a firm and doing a good business in specialties. Satisfactory and doing a good business to specialties. Satisfactor reason given for making the change proposed.

Address H. F. BASSETT,

Box 362. Taunton Mass.

OLD DDICC WINTED ULU DNASS WANIED.

We purchase for cash Old Brass, Composition, Copper, and Brass Turnings. JERSEY CITY SMELTING WORKS,

107, 109 and 111 Plymouth Street JERSEY CITY, N. J.

A YOUNG man, student of chemistry at the Massachusetts Institute of Technology, and at the University of Pennsylvania, with two years' experience in analysis at iron works, wishes a position at an iron furnace (charcoal preferred) with a view to acquire a practical knowledge of iron-making. Salary a secondary consideration.

Address "A. W. W." Address

1601 Callowhill St., Philadelphia, Pa.

Wanted,

to buy Shear capable of cutting Iron from thirty to forty inches long and one to two inches thick. Address THOMPSON C. GILL & CO.,

210 S. Third Street, Philadelphia, Pa.

A CHEMIST and Mining Engineer well up in the m-tallurgy of iron and steel, and having for some years had charge of the laboratory and acted as Assistant Manager of an open hearth surnace and rolling-mill plant and also at a charoal bia-t furnace, seeks similar engagement.

"OPEN-HEARTH STEEL," Care The Iron Age, 77 4th Ave., Pittsburgh, Pa.

Agencies.

We want to establish agencies in the principal cities f the United States, to push the sale of the Conray strigerator and Closet Boor Fastener.
P. J. CONROY & CO., 1605 Catharine Street, Philadelphia.

Special Notices.

16 in. x 42 in. Planer. Bridgeport. New.
18 in. x 3 ft. "Wheeler. Good.
24 in. x 4 ft. "Thayer & H. Good.
24 in. x 6 ft. "Powell. New.
24 in. x 8 ft. "Ames. New.
26 in. x 6 and 8 ft. Planers. Powell. New.
32 in. x 10 ft. "Pond. Nearly new.
32 in. x 10 ft. "Pond. Nearly new.
12 in. x 5 ft. Engine Lathe.
13 in. x 5 ft. Engine Lathe.
14 in. x 5 ft. Engine Lathe.
16 in. x 6 ft. "Word & Light. Good.
16 in. x 6 ft. "Billated! New.
18 in. x 12 ft. "Billated! New.
18 in. x 12 ft. "Wright & Smith.
19 in. x 10 ft. Engine Lathes. Pond. Nearly

10 in. x 10, 12 and 14 ft. Engine Laines. Pond. Nearly new.
20 in. x 10 ft. Engine Lathe. Blaisdell & Harris.
20 in. x 12 ft. Harrisburg. Fair.
34 in. x 12 ft. Harrisburg. Fair.
34 in. x 12 ft. Harrisburg.
32 in. Upright Drill, Back Geared and S. F. Pond. Nearly new.
20 in. Upright Drill Plain. Prentice. New.
12 in. stroke Sellers Traveling Head Shaper.
24 in Shaper. Headey. A l.
15 in. and 24 in. Shapers. Wolcott. New. 10, 15, 20
in. Shapers. G. & Eberhardt.
Platt & Whitney Die Sinking Sachine. New.
10. 34, and 4 Stless Blog Machine.
10. 40 Wilder 20-in. Punch Press.
30-in. Bliss Squaring Shear. Power. Extra Heavy. A 1
25 and 40 lb. Bradley Hammers.
17 wo Bradley Forges, No. 2. A. 1.
15 in. Vertical Boring and Turning Mill. A 1.
172-in.
17 you do not see what you want, write and specify just what is required. We have other machines not enumerated above.

E. P. BULLARD.

14 Dey Street, N. Y.

SCRAP IRON.

We buy all kinds of Iron and Stee Scrap, Burnt Iron, Old Rails, &c., &c. Write us, naming quan tity, price, &c.

115 Water St., Pittsburgh, Pa. (Established 1859.)

IRON AND STEEL SCRAP

Bought and Sold. IAMES H. LOGAN,

Pig Iron Commission Merchant, 93 Fourth Ave., - PITTSBURGH, PA.

SCRAP IRON. We buy all classes of Iron and Steel Scrap

Wrought Turnings, Cast Borings, Burnt Metal, &c GEO. A. MCLEAN & CO., Room as, Lewis Block, P. O. Box 455, Pittsburgh, Pa.

NOTICE. We buy and sell all classes of Iron and Steel

Scrap. Correspondence solicited. JOS. C. POULTERER & CO., 204 S. Third St., Philadelphia

Cotton Gin Ribs.

HARDWARE MERCHANTS and others furnished with materials of all kinds for making and repairing COTTON GINS. RIBS and SAWS for repairing ALL makes of gins. Send for Price List. Address THE BROWN COT-TON GIN CO., Manufacturers of Cotton Gins, Feeders and Condensers, New London, Conn.

For Sale.

Damaged Band and Rod Iron. For sale low

or in exchange for Scrap Iron or Scrap Steel. DAN'L W. RICHARDS & CO., Dealers in Scrap Iron, Scrap Steel and Metals,

92 MANGIN ST., NEW YORK. FOR SALE. New Hoisting Machines, worm geared; Three-Spindle Nut Tapper; Fox Lathe, back geared; 16, 18, so inch Engine Latnes; Hoop from Testing Machine; Small Slotter; Place Knife Grinder; 8, 10, 12 inch Horizontal Engines, with Boilers.

A. G. BROOKS,

261 North Third Street, - Philadelphia. FOR SALE.

H ARDWARE BUSINESS.—An old-established house of so years' standing, in one of largest cities in Western Pennsylvania, and in the midst of the natural-gas region, will be sold at a midst of the natural-gas region, will be sold at a sacrifice: It is a very desirab e purchase. Stock will invoice \$6000 to \$7000. Address "HARDWAKE BUSINESS,"
Office of The Iron Age, 66 and 68 Duane St., N. Y.

For Sale.

Hardware Business in a Kentucky town; county seat and healthy location. A weil-selected stock of Hardware, Queen s Ware Stoves and Agricultural Implements. Established 19 years. Has always been and is now a fine paying business. Invoice about \$4000. For particulars, address MOWELL GANU & CO...

Lincinnati, Ohio.

For Sale.

A complete set of Horizontal Blowing Machinery suitable for blowing a medium-sized blast-Furnace longine, so in. x 48 in., strongly seared, 3% to 1; blast cylinders, 60 in. x 66 in. Built ly R. s. Newbold & Son. All in first-class order. Can be examined on foundations. Apoly to SCHALL, STEACY & DENNEY, York, Pa.

The following Second-hand Machinery is for Sale at low prices. 8 new Flue Boilers, 54 in. diam., 24 ft. long,

in, 75 in. disaide. Apply to Taunto & Copper Manufacturing Co. Taunto & Copper Manufacturing Co. Taunton, Mass Manager Wanted

for an Anthracite Furnace; one sufficiently familiar with chemistry to analyze his own stock and products preferred. Address, stating age, experience and references, "B,"

Office of The Iron Apr. 66 and 66 Duane St., N. Y.

1886.

HAND

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Special Notices.

Second-hand Machinery for Sale.

Two Engine Lathes, 87 in. swing, 20 ft. 6 in. bed, Geared in Face Plate, Screw Feed, Com pound Rest.

Engine Lathe, 15 in. x 6 ft.

One Cylinder Boring Lathe, 33 in. x 10 ft. bed. One Am. Tool Co. Cabinet Turret Lathe, 20 in x 7 ft. Same as new.

One Boring Lathe, 42 in. x 14 ft. one Iron Planer, planes 24 ft. long, 62 in. x 62 in

Excellent condition.

One Iron Planer, planes 8 ft. long, 30 in. x 30 in. Two Iron Planers, plane 6 ft. long, 24 in. wide. Three Iron Planers, plane 4 ft. long, 24 in. x 24 in. Three !ron Planers plane 5 ft. long, 20 in. x 20 in One Oliver Bros. & Phillips' Boit Header.

One Four-Spindle Nut Tapper. One 1750-lb. Bement Steam Hammer. Excellent.

One Small Steam Hammer.
One Putnam Machine Co.'s Planer, 36 x 36 x 18,

very heavy.
One Hydraulic Wheel Press.

One 25-inch stroke Shaping Machine. One No. 3 Portable Drill.

One Steam Riveting Machine.

One 6co-18. Drop Hammer. One Slotting Machine, 6-in, stroke. Bement's

make. One Profiling Machine. One Axle Lathe, for car axles.

One Durrell 7 Spindle Nut Tapper. Send for lists New and Second-hand Tools, too ng for publication.

Sole Agents EDISON SHAFTING MFG. CO. THE GEO. PLACE MACHINERY CO., 121 Chambers and 103 Reade Streets. NEW YORK.

BARGAINS.

26 X 42 in. Hor Engine, Goodwin Cut-off.
20 X 48 in. Corliss Engine.
14 X 1. Vertical New York Safety Engine.
14 K 1. Vertical New York Safety Engine.
15 H.-P. Baxier Engine.
16 H.-P. Ligerwood Hoisting Engine.
28 in. swing, 16 't. bed. Engine Lathe.
28 in. swing, 16 't. bed. Engine Lathe.
29 in. '16 ft. ''
10-in. '1 of t. ''
11-in. '16 ft. ''
12-in. '16 ft. ''
13-Spindle Pratt & Whitney Drill.
15 in. Coleman Drill. New Haven.
20 in. N Y Steam Engine Co. Comp'd Planer.
16 H.-P. Warine Boiler.
17 H.-P. Vertical Boiler.
18 H.-P. Hor. Tubular Boiler.
19 H.-P. Port. ble Engine. Frie Carr. 26 x 42 in. Hor Engine, Goodwin Cut-off.

H.P. Port ble Engine. Eric City. H.P. Taber & Morse on wheels.
Fayne Vertical. ump.
ite and say what you want I have a large
t, constantly changing.
HENRY I. SNELL,

135 North 3d Street, Philadelphia.

NEW TOOLS FOR SALE

We have following tools completed or nearly so:

1 of X 12 ft. Lathe.

1 26 X 25 ft. " 1 42 X 18 ft. "

: 36 x 36 x o ft. Planer.

2 36 x 36 x any length of bed Planers, t fo-inch Pulley Turning Lathe, two tools.

THE NEWARK MACHINE TOOL WORKS, EAST NEWARK, N. J.

FOR SALE.

the lb, % ir. x 1/4 in. Cant Hook Steel.

100 lb. 15-16 inch

Lot left after finishing a contract. Will sell

BEECHER & PECK,

New Haven, Conn. FOR SALE.

A hearly new four-ton Steam Hammer, in first-iss condition. Made by the Morgan & Williams Scineering Co., of Aliance, Ohio. Very best anufacture. Address WORCESTER STEEL WORKS. Worcester, Msss.

FOR SAUE —An old and well-established Hard-wa e business in one of the best locations in Kansas (ity, Mo. For further particulars address "NALL", Box 22. Office of The Iron Age, 66 and 68 Duane St., N. Y.

BOOKS. PRICE

AFGE SIZE, 500 Pages, 6 x 91/6 in. each, \$8.00. CKET SIZE 250 Pages. 4 X 7 in., each, \$4.00. Send for Circulars.

B. LAMBERSON,

PORTLAND, OREGON. ANTED, Superintendant for nail factory in Nail Association. Must be

he western Nail Association. Must be be between Nail Association. Must be be be doubtrious and a practical nailer, with exel in running self-fee, ets. A man not over sof age preferred; must come well record. A good-situation to the right man. Admitted compensation expected, FAUTURY coffice of The Iron Age, 66 and let St., New York.

FOR SALE.

pair Rail Shears, with Engine, pair Rail shears, run by belt. Double Shears (Bement's make) er 1:-th. Return Flue Boilers.

Food order. Will be sold cheap. Apply to Jos. C. POULTERER & CO., 204 So. 3d St., Philadelphia

WANTED.—A position as a superintendent of an iron or Steel works, by an experienced manreculcation for special prices.

MERWIN MOKAIG,
Cumberland, Md.

WANTED.—A position as a superintendent of an iron of Steel works, by an experienced manager. Thoroughly practical, will be pleased to
furnish the best of testimonishs and references as
ability and character.

MILL MANAGER."

Office of The Iron Age, 66 and 66 Duane Street, M. Y.

Special Notices.

TO THE STEEL MANUFACTURERS OF THE UNITED STATES OF AMERICA.

United States Navy Department. Washington, D. C., August 21, 1886.

All these forgings must be delivered within the ollowing times from the closing of a contract, viz.; For 6-inch guas, 28 within one year, and the relationer within 18 months.

For 8-inch guas, within two years.

For 8-inch guas, within two and one-saft years.

For s-inch guiss, within two years,
For ro-inch and larger guns, within two and onehalf years.
Pre-creace will be given for earlier deliveries.
Also about 450 tons of steel armor plates, to be
of the best material and manuacture, shaped accurately after patterns to fit the form of each
vessel for which intended, and of such sizes as
may be re-quired, varying somewhat as follows:
20 feet by 8 feet by 12 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 feet by 17 inches thick.
11½ feet by 6 finches thick.
11½ feet by 6

Bureau of Ordnance, Navy Department, ton, D. C.
Each bid upon armor plate must specify the time within which the bidder will engage to make delivery; and preference will be given to carliest proposed deliveries.

Proposals must be in duplicate, sealed and addressed to the Secretary of the Navy Department, washington, D. C., the envelopes endorsed "Proposals for steel gun forgings and armor."

partment, analogue as the large partment dorsed "Proposals for sieel gun forgings and armor."

They will be received at the Navy Department until 13 o'clock, m. on the 15th day of December. 1886, at which hour the opening of the bids will take place.

The right is reserved to waive defects in the form of and to reject any or all bids.

Ten eer cent of the contract price will be retained from the payment of each article delivered, until the contract, as far as retates to articles of that class, shall have been completed.

Neparate bids may be submitted for the gun steel and for the armor, if any manufacturer so desires; but bids covering both will receive preference, other things being equal.

Bids will be compared in two classes.

First, Gun forgings.

Scond. Armor plate.

And the total sum for which, and the time within which, the whole of the maternal covered by each class will be produced and delivered, will be alone considered.

WILLIAM C. WHITNEY.

WILLIAM C. WHITNEY.
Secretary of the Navy.

METALLURGICAL ENGINEERING.

I am prepared to furnish

PLANS, SPECIFICATIONS and DRIVE ESTIMATES

AND TO

SUPERINTEND THE CONSTRUCTION OF ROLL-ING MILLS AND MACHINERY, RE-GENERATIVE GAS FURNACES, TUBE AND PIPE MILLS,

EIC., ETC. I represent the latest improvements in all the above branches.

M. V. SMITH, Metallurgical Engineer, Rooms 16, 17, and 18 Bissell Block. Pittsburgh, Pa.

The Mines are fully deven used another working order, and the works are now in operation.

The Dominion Parliament has granted a bounty on all Pig Iron manufactured in the Dominion of \$1.6: per ton of 1910 by. for three years from 181 of July 1830.

Also the Chigneto Coal property belonging to the Eatate of the Steel Co. of Canada (Ld.), in Liquidation, situate in Cumberland County, Nova Scotia, consisting of a mining area of four square miles, and upwards of 1900 acres of well timbered land, beld in freebold.

The Mines is thoroughly equipped with all the appliances necessary for an output of 400 tons per day, and is situated within two miles of the main line of the Intercolonial Railway, with which it is connected by a branch belonging to the property. All in first-rate order.

Application may be made to

A. T. PATERSON.

P. O. Box 2002.

Montreal, Canada,

FOR SALE-BOILERS AND ENGINES.

Two 48 in, x 30 ft. Double Flue Boilers, with Drums, Fire Fronts, Valves, &c., complete, in good order and certified for 100 ibs. steam by American Steam Boiler Insurance Co. c-n be run separately or together. Also one Double Vertical ngine. 16 x a 4s. Cylinders, or can be made into two single engines; this engine is of the best construction and workmanship, is complete with Governor, &c. All the above will be sold very low.

MACKINTOSH, HEMPHILL & CO., Ltd., Pittaburgh, Pa.

Special Notices.

For Sale.

For Sale.

The entire plant of the Melone Sewing Machine Company, consisting in part of a factory building of brick, 133 x 33 feet, three stories, with engine, boiler, a. d japanning and drop-forging and blacksmith rooms, all brick, containing one Reynolds-forliss 75-horse-power engine, one Babcock & Wilcox boiler, Edison electric-light plant, steam-heating pipes, &c; with the building, 83 x 237 feet of ground fronting on Main street and one house and lot on Second street; also four houses and lots and three vacant lots adjoining. This property is adjoining the depots of the C. W. B. and S. V. R. R., and very desirable for manufacturing purposes. Also the following machinery \$12.14 in. Blaisdell engine lathes.

Pour Garvin holds delight eathers.

Four Garvin hold engine lathes.

Nine A. nes power millers.

Four Garvin No. 2 millers.

Two Merrill Bros. 4*0-lb, drop hammers, One No. 3 Stiles & Parker punch.

One lod edging machine.

(double America Stamson No. 4 screw machine. with

Warner & Swasey race custing side, says a screw machine, with feed and adjustable chuck.

Fratt & Whitney small screw machine, with feed and adjustable chuck.

Fratt & Whitney small screw machine, with feed and adjustable chuck.

Garvin screw-feed thuck.

Garvin screw-feed finishing machine.

Garvin screw-feed finishing machine.

Fratt & Whitney balance wheel surning side.

One Jone & Lamson No. 3 screw machine.
One Pratt & Whitney balance wheel turning machine.
Two small emery grinders.
Two small emery grinders.
Two amail polishing heads.
One Pratt & Whitney distinking machine.
One for the season of the seaso

FACTORY FOR SALE,

ST. LOUIS, MO.

The undersigned offers for sale at 60 per cent. of actual value the factory and grounds of the Stumpe & Nichaus Furniture Co., corner of Main and Madison streets.

The lot has 80 feet front on Main street and runs back 17 feet on Maison street to the Wabsab R. R. tracks, near a switch for receiving and shipping in connection with all railroads centering in the city. The building occupies 80 feet on Main street, extending back 192 feet on Madison street; has three stories and a basement, containing over 15,000 superficial feet of floor space, with walls adapted to carry two additional stories, which would increase the floor space to 51,000 feet; is furnished with a ful complement of furniture manufacturers' modern machinery and appliances, incuding shaving blower, steam heating and drying apparatus, elevators, engines, boilers, &c., ceiling and sverything else complete and in good order, ready to start up at once. This property is well adapted for any manufacturing purpose requiring good railroad facilities and large factory and yard room.

The location is one of the most desirable in the city. Terms of payment libers. Call or address

H. KLAGES,

2500 North Market St., - ST. LOUIS, MO.

3500

ALL SIZES

DISCOUNT TO THE TRADE.

H. M. SCIPLE,

107 and 109 N. Third St., Philadelphia, Pa.

SECOND HAND, CHEAP.

For Sale.

The Works of the Pembroke Iron Company, at Pembroke, Maire. Property consists of a dam and fine water-power, nail factory and rolling milimit a complete plant for the manufacture of all hads of rolled iron. Persons wishing to manufacture of to buy machinery will find this a rare opportunity. For terms address,

BENJAMIN LINCOLN,

Dennysville, Maine.

FOR SALE —An old and well-established Hardmans of the best locations in Kansas (1), Mo. For further particulars address "Nalle", Box 23.

The mines are fully devel ped and in first class with power lift. Send for List of Second hand Tools.

CHEAP.

5t. 24 X 24 Planer.
One 4t. 26 X 18 in. Planer.
16t. 24 in. Engine Lathe.
One Foot-Power Serew-Cutting Lathe.
One Foot-Power Serew-Cutting Lathe.
One Foot-Power Serew-Cutting Lathe.
One Foot-Power Serew-Cutting Canada.
The property extends to about 23,000 acres, weekly consulted for the series of Consulting Machine.
One 49 pindle Garvin Drill.
One 49 pindle Garvin Drill.
One 2-10 property with Power Lift.
Send for List of Second hand Tools.

The Mines are fully devel ped and in first class with Power Lift.
Send for List of Second hand Tools.

New York Machinery Depoty

New York Machinery Depot,

RARE BARGAIN!

FOUNDRY AND MACHINE WORKS FOR SALE AT STAUNTON, VA.

Owing to the death of the senior member of the re-cent firm, this establishment is to be sold. The works occupy valuable real estate, and could be removed to cheaper locality. There is a speculation in the real estate. Machinery sold separate if desired. An in-spection of the place solicited. Address FRANK C. BEALL, Executor, Frostburg, Md.

To Mill Owners.

An energetic and experienced man wishes an engagement as Superintendent or Wanager of a Rolling in. Has been connected for upward of 20 years with both Steel and Iron Hills whose manufactures include Rails, Bar, Hoop, Rod, Wire Rod, Plate, Sheet and Naila. Can erect Mills, design Rolls and intelligently oversee all the details of the various branches included in the works. Satisfactory references given. Address "ROLLING MILL." BOX 7.
Office of The Iron Age, 66 and 65 Duane Street, N. T.

WANTED,

We buy all kinds of Iron and Steel Scrap. Write to us when you have any to sell.

SITES, WHEELER & CO.,
292 and 224 So. Third Street,
Philadelphia, Pa.

Trade Report.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.] LONDON, WEDNESDAY, September 22, 166.

Scotch Pig. - The market remains firm, and prices are from 6d. to 1/6 better, Coltness being now quoted at 48/, as per table

Gartsherrie, Carnbroe, Glegarnock, Ardrossan. inton, mellington," Carriage from Ardrossan to Glasgow is 1/ % ton.

Cleveland Pig.-There is no change to report in this market. We continue quotations as follows:

Bessemer Pig. -The market is dull. No change worth recording. We quote as follows: W. C. Hematites 42/ for mixed lots, Nos. 1, 2 and 3, equal portions, f.o.b. shipping ports. Manufactured Iron.-No activity in

last week; no change in quotations:

prices do not improve. We continue last week's quotations: Ordinary sections, £3. 12/6 @ £3. 17/6, f.o.b. shipping ports.

Old Rails-Are firmer, but without quotable change: Old D.H.'s, e.i.f. New York, 56/. Scrap.—The Scrap market unchanged. No life in this market. We continue quota-

Bessemer Crop Ends, run of mill, 54/@ 56/, c.i.f. New York. Copper.-The market is a little firmer, and Chili Bars have advanced about 15/

tions as follows: Heavy Wrought, 50/;

Best Selected, £42. 10/ @ £43. 10/, and Chili Bars, £40. 15/ @ £41. 5/. Tin .- This market is a little firmer, and prices are decidedly higher, Straits, spot, being now quoted £101.15/ @ £102. 5/

futures, £102. 5/@ £102. 15/. Tin Plates.-The market remains irregular, and prices are unchanged, viz.:

Spelter.—This market is without activity and prices remain the same as noted for

ports, £13. 15/@ £14. Freights.-Steam from Glasgow to New York, 6/@ 7/6.

Financial.

Office of The Iron Age, WEDNESDAY EVENING, September 22, 1886, The trade movement from week to week is progressive as to the amount of sales, but with few exceptions there is no corresponding improvement in prices, and business is necessarily done on the smallest margin of profit. Increasing activity is the most satisfactors feature for the states of the s factory feature in the situation, so long as full control have not been strongly imthe speculative mania can be repressed, and pressed with the value or prospects of the in this regard the comparative dearness stock." It would be premature to conclude of money has a salutary effect. The revival is more especially noteworthy in the West, pany have been in any sense circumvented, where the crops are being marketed, and as a consequence merchandise passes more kill region, now about going into operation, readily into consumption; for like reasons collections are good. Among the ing amounted to 43,468 tons, against 38,490 for the previous week. At the same time Traders' Exchange \$775. there is a heavy movement of grain and ore through the northern lakes. Up to the 14th during the week were \$100,000 above those inst. 3,000,000 tons of shipping had passed of the previous week, the total valuation through the Sault Ste. Marie Canal from being \$9,285,449, making the total since Lake Superior, giving promise of the largest January 1 \$311,360,048, as against \$280, business this year that has been known in 779,000 for the same time in 1885 and the history of that great artificial channel. \$319,514,000 in 1884. The exports of mer-At Buffalo the grain movement has been the chandise were \$2,108,972 above those for the largest on record, excepting only the season previous week, the total valuation being of 1880, and remunerative freights have \$7,600,142, making the aggregate since given a strong impulse of shipbuilding at January 1 \$229,740,821, as against \$240, all the lake ports. West-bound shipments 800,000 for the same time last year and are also heavy. A factor which is more \$234,778,000 in 1884. Included in the items especially felt in speculative circles is the were 108,221 barrels wheat flour, 478,982 increased volume of railway earnings, with bushels wheat, 476,564 bushels corn, 19.839 all the "pools" working in harmony; bales cotton, 11,351,539 gallons petroleum, and in the coal trade the managers 4,705,011 % cut meats, 2,779,324 % lard. have followed up an advance of 10# @ According to the Custom-House report the 15¢ \$\text{?} ton, with an allotment of 3,250,000 exports of specie from this port last week Iron and Steel Scrap, tons for October, without dissent. In a were \$292,197, making a total since January of the situation, both as to 1 of \$44,145,915, as compared with \$19,trade and finance, the fundamental fact is 000,000 for the same time in 1885; and the the assurance of agricultural prosperity. imports amounted to \$1,643,635, making a

able general average in the several States. At St. Paul the fall season opens fully three weeks earlier than last year, corresponding with the earlier date at which the wheat crop was harvested."

Stock exchange markets have been strong and active on the strength of reports relating to the reorganization of Reading. On Thursday the excitement on Reading was unusual. Central New Jersey was also a prominent feature, and transactions in these two stocks constituted a large share of the day's business. On Friday and Saturday the upward movement was renewed with increasing vigor and the volume of business was the largest for many months, comprising 640,000 shares on a single day. The coal shares, Western Union and Union Pacific were dealt in most largely. On Monday, influenced by higher prices in London, the market was very strong, and Lackawanna and Western Union were conspicuous at an advance, also the grangers and East Tennessees. The failure of Tasker H. Marvin had little effect. On Tuesday there was a slight reaction, with speedy recovery. To-day the bullish feeling was more pronounced, and on the announcement of the election of Quotations at the close were as follows: Canada Southern, 54; Canadian Pacific, 68; Central Pacific, 46¾; Chicago, Burlington and Quincy, 137½; Northwest, 118%; St. Paul, 98%; Rock Island, 128%; Hocking Valley, 35 1/8; Lackawanna, 1393/8; Delaware and Hudson, 1071/2; Denver, 321/4; this market; remains about the same as East Tennessee first prefered, 74; do. second preferred 291/2; Indiana, Bloomington and Western, 20; Louisville and Nashville, 481/4; Lake Shore, 92; Michigan Central, 87; Mis-Jorsey Central, 61; New York Central, 1134; Kansas and Texas, 35; Jersey Central, 61; New York Central, 1134. Erie, 354; do. preferred, 774; New York and New England, 456; Northern Pacific, 291/8; do. preferred, 621/4; Oregon Navi-Steel Rails.—The market is steadier, but gation, 1071/2; Oregon Transatlantic, 341/4; Pacific Mail, 58; Reading, 36; Southern Pacific, 40½; Omaha, 50½; do. preferred, 114½; Texas Pacific, 17½; Union Pacific, 61; Western Union, 72½; Consolidated Gas. 78%

United States bonds closed as follows:

8 per cents 100% ... Cur. 6s, 1895, 12314 ... 414.s., '91, r. ... 11154 ... 11154 ... Cur. 6s, 1896 ... 1295 ... 414.s., '91, c. ... 11154 ... 11156 ... Cur. 6s, 1897 ... 12154 ... 415.s. 1907 ... 1253, 12654 ... Cur. 6s, 1898 ... 134 ... 48, 1907, c. ... 12734 ... 12736 ... Cur. 6s, 1899, 13654

In general business there is a good movement in progress, but not of such a remunerative character as to justify the booming accounts often published. In dry goods trade is more quiet, with prices somewhat higher than a year ago, and the tone of the market for nearly all textile fabrics continues very firm. In coffee, under high speculative excitement, prices culminated, followed by strong reaction. Wheat and corn declined, but prices are again firmer. Pork and lard are dull. Cotton has developed further improvement in demand and quotations. The event in financial circles is the reorganization of Reading under the presidency of Austin Corbin as successor to Mr. Gowen, all of which is assumed some time past, viz.: Ordinary at shipping to have been actually accomplished. The Philadelphia Press says: "Under the new plan the stockholders will pay an assessment of \$10 per share, just as was proposed under the old, but they will receive an income bond instead of preferred stock. The income bond will bear 4 %, while the preferred stock would have been entitled to 5 % if earned. Neither the in-terest nor the dividend is cumulative. The value of the income mortgage, coming as it does after the \$100,000,000 general mort-

The total New York subscriptions to date signs which challenge attention is the in aid of the Charleston sufferers amount to heavy movement of commodities toward the \$172,382, including \$1350 from the Hardware Atlantic seaboard, the east-bound freight Board of Trade, from the Chamber of Comshipments from Chicago for the week hav-merce \$74,622, Stock Exchange \$10,635, Produce Exchange \$85,000, Mechanics' and

The imports of merchandise at this port

The Farmers' Review, of Chicago, says: total of \$14.410,059 since January 1, com-"The data received concerning the crops are pared with \$8,000,000 for the same time in a. Pa. ample as indicating approximately the prob- 1885, and nearly \$18,500,000 in 1884.

Trade Report.

New York.

American Pig.-While current business is confined to covering requirements for immediate and early delivery, the feeling of confidence is growing stronger. It is characteristic of the closeness with which many consumers are running that any delays in deliveries cause immediate and urgent reminders to sellers. No. 1 Foundry is scarce, and the number of sellers willing to part with moderate-sized lots of standard brands at \$18 is growing very small. No. 2 and Gray Forge are in more plentiful supply. We quote standard brands Foundry No. 1, \$18 @ \$18 50; No. 2, \$17 @ \$17.50, and Gray Forge, \$15.75 @ \$16.25.

Scotch Pig .- The market is dull and is little affected by the better advices from the other side. We quote nominally as follows for small lots: Coltness, \$20 to arrive; Gartsherrie, \$19.50 to arrive; Shotts and Langloan, \$19.50 @ \$20 to arrive; Carnbroe and Glengarnock, \$19 to arrive; Summerlee, \$19.75 to arrive; Dalmellington, \$19 to arrive; Eglinton, \$17.75 @ \$18 to arrive, and Clyde, \$19 to arrive.

Bessemer Pig.-This market is dull at \$18.75 @ \$19 nominally for Foreign at tidewater, and \$18 @ \$18.25 for Domestic at furnace. Advices from the West show that the markets have recovered from the decline of the past months. Contracts for Foreign Ore for 1887 delivery have begun to be made. We hear of 75,000 tons thus entered at about last year's prices, delivered in Pittsburgh. Freight rates on Foreign Ore from Spain and the Mediterranean have latterly advanced to 10/6.

Spiegeleisen.-We hear of sales aggregating 10,000 tons for 1887 at private terms. We quote \$25 @ \$25.50 for 20 % English

Bar Iron .- The market is more active than it has been for a very long time, orders for round lots coming in. The demand appears to be chiefly from large consumers, although dealers, too, are beginning to show a disposition to stock up. The market is firm. We quote for round lots, on dock, Common Iron, 1.6¢ @ 1.70¢; Medium, 1.70¢ @ 1.75¢, and Refined Iron, 1.8¢ @ 1.9¢.

Structural Iron and Steel.-The market is more active, and prices show a hardening tendency. We quote, according to quality, for Angles 2¢ @ 2.20¢, delivered, and Tees at 2.5¢ @ 2.6¢, for round lots. Steel Angles are quoted 2.40# @ 2.50#, according to quality. Store quotations remain 2.35¢ @ 2.4¢ for Angles, and 2.7¢ @ 2.8¢ for Tees. American Beams and Channels are nominally 3¢ base from dock for all or-

Plates .- The market has been active, and there have been a number of sales of round icts of Steel and Iron Plates. The mills are very full, and higher prices are generally demanded. We quote for round Common or Tank, 2.2¢ @ 2.25¢; Refined, 2.35¢ @ 2.40¢; Shell, 2.5¢ @ 2.6¢; Flange, 3.40¢ @ 31/2¢; Flange, Extra, 4¢ @ 4 14. For small lots of Steel Plates the quotations are as follows: Tank, 2.70¢ @ 2.75¢; Ship, 3¢; Shell, 3¼¢; Flange, 3½¢, and Fire Box, 41/4 @ 41/2¢, on dock.

Merchant Steel .- We quote nominally for the range of ordinary to good grades as follows: American Tool Steels, 71/4 @ of: Tool Steel of special grades and finer qualities, 12¢ @ 20¢; English Tool, 13¢ @ 15 1/2 ; common grades, 7 # @ 9#; Crucible Machinery, 3.75 # @ 4.50 #. The Steel Association quotes base prices: Round and Flat Spring, 2.6¢; Round-Edge Tire, 2.3¢; Square-Edge Tire, 2.5¢; Toe Calk, 2.4; Sleigh Shoe, 2.2¢ @ 2.5¢; Open-Hearth the same in good Mill Irons. Sales have Machinery, 2.5¢, and Bessemer Machinery, been on the basic of \$15 to @ \$10 at tide for ery, 2.5¢, and Bessen

Steel-Wire Rods .- The advance in the price of Billets abroad has stiffened the is well sold up except No. 2, apart from price of the German works in Rods. Here which there is a decided tendency toward the market remains unchanged at \$37 @ better figures. Choice brands command the \$37.50 for immediate shipment, and \$36.25 @ \$36.50 for later delivery.

Steel Rail Blooms .- We hear of no business in foreign material, for which we quote \$26.75 @ \$27. Adding freights to interior point and \$6.50 for cost of rolling, including waste, loss on crop ends, heating, &c., it of the question. We are informed that the Pennsylvania Steel Company have so much increased their Steel-making and Blooming capacity that they are able to enter the market as sellers of Rail Blooms at the rate of about 1500 tons monthly.

business in foreign material recently. We \$26.50, but it is not improbable that the quote \$28 @ \$28.50 for 4-inch. The sale of lower quotation would be shaded on the right Pittsburgh is reported at \$31.50, thus show- at \$27.50, ex ship, duty paid, and are offered ing how the advance or foreign stock has at \$27.75 @ \$28; Sheet-Iron Billets, \$29 @ allowed American works to secure better \$30; higher qualities for Boiler Plate, &c.,

Steel Rails .- We have not heard of any sales of any magnitude for next year's delivery, although in the aggregate considerable business has been placed quietly during the past month. Some authorities estimate the total at more than 100,000 tons. East higher figures, say \$29.50 @ \$30 at mill, with idle, but it is thought the matter will be setand West. The market for early delivery

livery, with \$33.50 @ \$34 for the early for some time past considerable activity in the demand for Steel Rails, notably from a large number of smaller towns all over the

· ld Rails .- The market has been quiet, little except small sales having been made. Buyers are not ready to pay the prices demanded, and sellers hold firmly. For T's \$22 @ \$22.50, and for Double Heads \$23 @ \$23.50. Buyers' views are \$1 under these

scrap. -The market is quiet, holders asking \$19 @ \$20.

Rail Fastenings .- We quote 2.15¢ @ .25¢ for Spikes, delivered at New York, 1.85¢ @ 1.90¢ for Angle Fish Bars, 2.50¢ @ 2.75¢ for Bolts and Square Nuts, and 3¢ for Bolts and Hexagon Nuts.

Philadelphia.

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, September 21, 1886.

Developments during the past two or three weeks have been decidedly favorable to the Iron trade, and it seems now as though continued activity, and perhaps further improvement in prices, might be safely predicted. The large consumers of Iron are nearly all well supplied with orders, and those that are still a little slack have inquiries and negotiations on hand which promise a good share of business in the near future. The Baldwin Locomotive Works, which are regarded as a representative concern, are working up to their fullest capacity, averaging about two locomotives per day; their largest turnout was 25 in two weeks during August. They have orders which will give full employment for several months more, and while prices are very low they report a tendency toward better figures on all new business. The car shops are also full of orders, and, in fact, all the interests connected with railways are fuller of orders than they have been for years past. Other departments report gratifying improvement, so that the consumption of Iron within the next few months is likely to be the greatest in the entire history of the country. The enormous capacity for production keeps prices at a low point, but if the demand is maintained better prices are pretty sure to follow.

Pig Iron.—The demand shows some little improvement, but there is nothing like urgency on the part of buyers. The supply is about equal to requirements, although there is a little scarcity in certain brands, while others are in moderate supply, thus giving the market an appearance of irregularity and uncertainty. On the whole it is probable that the position is better than it was a week ago, due chiefly, however, to the improvement in Finished Consumption is very large, but the output is sufficient to prevent anything like scarcity, and, besides this, some of the large companies are willing to take orders for next year's delivery at to-day's prices-and, in fact, have done so to some extent-but there is no great anxiety to sell or to buy beyond covering requirements during the next 30 or 60 days. Not because consumers have any doubt as to their requirements, but rather because of the idea that prices are not going much higher, and in any case, if the outlook should change, they expect still to be able to place their orders at pretty near the rates now ruling. Whether they will be able to do so or not remains to be seen, although there can be no doubt that the position of holders has steadily improved within the past three or four weeks. Prices are not quotably higher. but there is more demand and a gradual decrease in competition with cheaper or inferior Irons. There is a slight gainperhaps 25¢ cents \$\mathcal{P}\$ ton—in seller's favor for No. 1 Foundry Iron, and about been on the basis of \$18.50 @ \$19 at tide for \$16 @ \$16.25 for Gray Forge. Everything usual premium of about \$1 ? ton, and are increasingly firm, while as regards lower-priced Irons there is very little for sale at less than the figures asked for standard grades.

Foreign Iron.-There is nothing to report in this line, although prices would will be seen that this price puts business out probably be a shade easier on firm offers for good-sized lots. Bessemer for shipment offered at \$19 @ \$19.50, and 20 % Spiegel at \$25.50 @ \$25.75.

Blooms. -Quotations on Steel Blooms vary considerably, and are liable to change steel Billets.—We have heard of no Rail Blooms, duty paid, is from \$26 to lot of 4000 tons of Domestic Blooms at kind of an offer. Nail Slabs have been sold \$36 @ \$38; Charcoal Blooms, \$50 @ \$52; Run-out Anthracite, \$43 @ \$44; Scrap Blooms, \$34 @ \$35, and Ore Blooms, \$34 @ \$35.

Muck Bars .- There is a very active demand, but the supply is limited, and held at several sales at the inside figure.

amount of business has been done at the their anxiety to get down all the Pipe possimonths of 1887. There is now and has been higher figures. The mills are very full of ble before the advent of cold weather, are work, however, with plenty more offered at employing about all the menthey can obtain. the old figures, which has been invariably The leading railroads made the discovery declined. Bids of 1.85¢ for 500-ton lots some time ago that they did not have suffiwere made to-day without finding takers at less than 1.9¢ for the class of Iron called for. The position is undoubtedly much improved, and from present appearances there is every reason to expect 1.9¢ @ 2¢ becoming minimum figures for Bars during the balance of the year. Skelp Iron is also firmer and nearly a tenth dearer than it was a week Sellers quote 1.90¢ for Grooved, and 2 25¢ for Sheared, with bids for good-sized lots at 1.85¢ @ 2.20¢.

> Plate and Tank Iron .- Under a continued good demand prices have stiffened again and are from 0.05¢ to 0.10¢ dearer on the lower qualities. Some of the mills are having a little trouble with their labor, so that the output is not up to full capacity, although the demand is, or very nearly so. A good deal tract for future deliveries are now disposed of business has been placed during the week, however, with a considerable amount of inquiry for lots still to be given out. Prospects are unusually satisfactory from a seller's standpoint, and entire confidence is felt in dent that some of the furnaces will be out the following quotations for almost any delivery during the current year: Ordinary Plate, 2.15¢ @ 2.25¢, delivered; Tank, 2.2¢ @ 2.25¢; Shell, 2.5¢; Flange, 3.5¢; Fire-Box, 4.25¢; Steel Plates, Shell, 3.25¢; Flange, 3.5¢; Fire-Box, 41/2¢ @ 5¢.

Structural Iron.—Continued improve nent may be reported in this department, both as regards the volume of business and prices realized. A vast amount of work is under contract, while there is a steady influx of a smaller class of orders, which in the aggregate amounts to a considerable business. Consumers of Shaped Iron in all departments appear to be busy, so that there is some difficulty in meeting the demand as promptly as desired. Prices are firmer, and from 0.05# @ 0.10# dearer on both Angles and Plates, which are now quoted as follows: 2.1¢ @ 2.15¢, delivered, for Angles: 2.2¢ @ 2.25¢ for Bridge Plate; 2.5¢@ 2.6¢ for Tees, and 3¢ for Beams and Channels.

Sheet Iron.-Business has been some what better during the past week, but the absence of demand for Light Sheets is somewhat remarkable, considering the season Heavy Sheets are quite active, and in this way the mills are kept fully employed. Prices are a shade firmer, and may be quoted

about as follows: Best Refined, Nos. 26, 27 and 28.

Best Refined, Nos. 18 to 25.

Common. 44 ens than the above.

Best Bloom Sheets, Nos. 26 to 28

48 Best Bloom Sheets, Nos. 22 to 25

48 Best Bloom Sheets, Nos. 16 to 21

38 Bue Annealed Best Bloom, Galvanized, discount Common, discount

Steel Rails .- The demand is quite up to expectations, and is about as large as can be comfortably handled. Sales have been year's delivery, and \$34 for 1887. Manufacturers are not urging sales to any great extent, although taking about all the business that is offered to them at the figures above quoted. The outlook continues to be of the most encouraging character, and a large business is considered to be fully

Old Rails .- There is quite an active de nand for Old Rails, but the scarcity for spot delivery makes very irregular quotations. As near as can be judged \$21.25 @ \$21.50 would be paid for immediate deliveries, perhaps more for a good lot of Rails, but it is merely guesswork. Two 500-ton lots Mixed T's and Double Heads, prompt shipment by steamer from abroad, sold at \$22, with \$22.25 asked for lots in store. Last sale of T's was at \$21.25 spot, with more wanted at about the same figure.

Scrap Iron.-There is a good demand for almost everything, at about the following tage. quotations: No. 1 Wrought Scrap, \$19@ sis of 1.65¢@ 1.70¢ for Bars for assorted 10.50: Selected do. \$20 @ \$21: No. 1 Foundry, \$17 @ 17.25 for No. 2, and do., \$13 @ \$14; Turnings, \$14 @ \$14.50; Old Car Wheels, \$15 @ \$16; Old Steel Rails, \$20 @ \$21; Fish Plates in demand at \$24 @ \$25; Cast Scrap, \$14 @ \$15; do. Turnings, \$10 @ \$10.50.

Wrought Iron Pipe .- There is no steady prices. Discounts as follows: Lap-Welded Black, 55 %; Butt-Welded Black, 421/ 5; Butt Welded Galvanized, 321/2 5; Lap-Welded Galvanized, 371/2 %; Boiler

Nails .- There is more business offered than there has been for some time past, but it is difficult to secure full prices, although the tendency is somewhat in favor of sellers. Store lots are nominally \$2.20, but the actual selling price is about \$2.10.

Mr. E. J. Etting, of Philadelphia, has been appointed agent for the sale of the Irondale Iron Foundry and Mill made at the Irondale Furnace, Preston County, W. Va.

Pittsburgh.

Office of The Iron Age, 77 Fourth Avenue, To those satisfied with a regular, legitimate business the outlook continues encouraging. There is a hitch between the Nail manufacturers and the Nail feeders; in consequence the Nail factories are standing tled before long. With this exception all

cient rolling stock to do the business, and they are now very anxious for more cars and locomotives. Unless semething unusual turns up in the meantime the probability is that there will be more new railroads in 1887 than this year. There is no place in the country so much interested in railroad improvements as Pittsburgh, as she makes Rails and all kinds of Railroad Supplies. The production of these has been largely increased here within a few years.

Pig Iron.-We have to report a continued active and firm market. Consumers who not long since were buying only as their immediate wants required are now willing to contract ahead, while furnacemen who until quite recently were anxious to conto hold back. However, a good many consumers have succeeded in making contracts to cover their wants for from one to three months, and this being the case it is eviof the market for some time to come. It is claimed that sales have been made by furnacemen in the Shenango and Mahoning valleys at an advance of from 25¢ to 50¢ ? ton within the past week, and, if so, the furnaces here will no doubt demand a similar advance. Lake Ores have gone up considerably, owing to the sharp advance in Lake freights, and those furnaces having to buy Ores will have to get more money for their product if they expect to come out even. The offerings of Southern Irons have fallen off considerably within the past few weeks, owing, it is said, to an advance in freights, and this, too, has not been without its effect in stiffening this market. We nuote as follows :

Veutral Gray Forge	\$15.50 @	\$16,00, 4	mos.
White and Mottled	14.50 @	15.00, 4	64
All-Ore Mill	16.75 @	17.00.4	64
o. 1 Foundry	17.50 @	18.00, 4	6.6
lo. 2 Foundry	16.50 @	17.00, 4	64
Ill-Ore Foundry	18.50	19.00, 4	6.6
charcoal Foundry	20,00 @	28,00, 4	0.6
'old-Blast Charcoal	24.00 @	27,00,4	6.6
Bessemer Iron	18.25 @	18.50, 4	4.6

Bessemer Iron has stiffened up considerably. and there are now but few sellers under \$18, cash, and it is claimed that some sales have been made at the prices quoted. Included in the sales of Mill Iron made during the week was a lot of 2500 tons for October and November delivery at \$15 25, cash.

Muck Pars.—There is a continued steady demand, and prices are firmer. We repeat former quotations at \$27 @ \$27.50, cash.

Manufactured Iron .- Orders continue to come forward freely, and the mills generally are well employed; some of them are unable to catch up with their business. At no time for several years have mills here been so well employed as at present, and if made at from \$34.50 to \$35 at mill for this prices were a little better there would be no cause of complaint. In addition to the regular Merchant-Iron trade there is a good demand for specialties. Mills running on Skelp Iron are all pressed, unable to supply those with whom they have contracts with Iron as rapidly as they desire it. There is also a very good demand for Plate and Tank Iron; a great many new oil tanks are being put up in the various new oil fields; hence there is an increasing call for Tank Iron. There is not so much demand, possibly, for Structural or Bridge Iron, but some of the mills making a specialty of these are pretty well employed on old contracts. Until within the past few months mills using O.d Rails were enabled to undersell those using Pig Iron. Within the time specified the situation has changed considerably, and to the advantage of the latter, for while Pig Iron has remained unchanged Old Rails have advanced \$1.50 @ \$2 \$7 ton, and Old Rail consuming mills no longer have the advan-We continue to quote prices on a ba-No. 2 orders_th at is, for first quality Iron-and 10 less for poorer qualities.

Nails.-There has been no change in the situation here; the factories continue idle, owing to a hitch between the manufacturers and nailers. The former want the latter to accept the wage scale being paid at Wheelchange to report, the demand being large at | ing and other points west of Pittsburgh, to which the latter refuse to accede, and thus the matter stands. It is said that the nailers are willing to accept the scale proposed. but are not permitted to do so by the Amalgamated Association, in whose care they placed themselves some time ago. Manufacturers say that it is impossible for them to pay the present wages scale and meet competition from the East, where skilled labor is much less and the cost of transportation about the same. There are no Nails here, and if the hitch holds out much longer jobbers will be obliged to order Nails elsewhere. Steel Nails are still quoted at Wheeling at \$2, 60 days, 2 % off for cash, in carlots and upward.

Wrought-Iron Pipe.-There is nothing new to note; mills are all just as busy as they can be, none of them able to keep prices. We understand that jobbe up with their orders, and this may continue now allowing a rebate of 5% until the close of the year. There never those orders, and the price uniform was such a demand for Pipe as there has at \$2.10 and \$2.20 in small lots been this year, occasioned mainly by natural- carload lots at \$2.05 for Iron Nail gas and oil developments, and there is no \$2.15 for Steel, 2 %, 60 days, reason apparent at present why it should not makers are not soliciting orders at centinue for several years to come. Prices careful not to take them for deliver remain unchanged, but they are firm; dis- far ahead. We learn that their price counts are as follows: Black Butt-Welded Chicago, is \$2 for Iron Nails and \$2. remains firm at \$34.50 @ \$35 for round blocks, and \$34.50 for December de- has been fully maintained, although no large tion to which natural-gas companies, in ized do. 35 \$; Black Lap-Welded, 57 \$ \$; private advices ebtained from manufactories.

Galvanized do., 40 %. Boiler Tubes, 50 % off 2-inch Oil-Well Tubing, 14 # P foot, net; 55%. inch Casing, 45 % P foot; 8-inch Drive. Pipe, \$1,30.

Old Rails .- Old Iron Rails continue firm but so far as we can learn very few sales have been made here of late, the extreme views of holders having a tendency to restrict operations. We quote in the absence of sales at \$23.50 @ \$24. Old Steel Rails also scarce and tending upward; long lengths are now quoted at \$23 @ \$24.

Steel -There is an increasing demand for all kinds of Bessemer Steel, and pries are firmer, in sympathy with Bessemer Iro-Bessemer Billets and Blooms, \$31 @ 32; Nail Slabs, \$30 @ 31; Refined Cast To Steel, 8¢ @ 9¢; Crucible Machinery, 3 @ 4¢; Open Hearths do., 21/2¢ @ 23 There are no sales of Crop or Bloom Endin the absence of which we omit quotations -none here for sale.

Steel Rails .- The mills are as busy as they can be, and but few of them here or elsewhere can take additional orders for present or near-by delivery. We continue to quote heavy sections at \$36 @ \$36 50 cash, at mill.

Railroad Track Supplies .- There is ontinued fair business, but no recent change in prices. Spikes, 2.40¢, 30 days delivered; Splice Bars, 1.65¢ @ 1.750 Track Bolts, 2.75¢ with Square and 2.85¢ ge with Hexagon Nuts.

Old Material .- There is a very fair and increasing demand, and prices a firm, being low here as compared cost at sources of supply. No. 1 Wrong Scrap, \$18 @ \$19, net ton; Wrong Turnings, \$14 @ \$15; Car Axles, \$23 \$24; Cast Borings, \$12 @ \$12 50, gr ton; old Car Wheels, \$16.75 @ \$17, gre mixed lots Open-Hearth Steel, \$20 (@ 82 There is a good demand for all kinds Open-Hearth Scrap Steel, and but little be had, and then only in small lots.

Chicago.

Office of The Iron Age, 36 and 38 Clark St. Cor. Lake St., Chicago, September 20, 1886.

An excellent trade is the uniform report merchants in this city and throughout West for the last week It is said that the volume of sales was far ahead of all form years on all classes of merchandise. heavy shipments of grain have made m plenty in agricultural districts, and co quently collections are easy and cash counts quite general. Manufacturers nearly all kinds of goods are working th entire capacity. In Iron stocks this co tion of affairs has led to a clamor for high prices on unfinished material. Found and rolling mills are not seeking order and yet cannot satisfactorily take care of coming trade. Ores are scarce, in good mand and up in price. Old material is abundant, and for some articles abnorms high. Capital seeking new enterprises at the natural growth of the country are t conspicuous causes for this period of activit The opinion that this revival in trade healthy and the beginning of an era of pr perity is heralded from every quarter of the Alleghanies.

Hardware.-The shipping department of all large jobbing houses have be crowded during the past week with piles seasonable goods. Elbows, Coal-Ho Vases and Stove Fixtures were in excell demand, with considerable increase in call for Shelf Hardware and Cutlery. only sensational feature in the trade the putting forth of a circular by a house in this city announcing 25 and 5 count on Granite Ware, under the head of "Combination Bursted." As the pi has not been unusual on large orders. the parties not being members of the bination, the announcement has had no ible effect upon the trade. Jobbers rep dy market and firm n urers are not soliciting orders, and no portant changes in discounts have or on the general lines of Hardware. Wagon and Carriage wood stocks are and in good demand at prices a shade high than a month ago.

Barb Wire.-In 500 to 1000 fb lots demand for Wire is tolerably good. price on such quantities is 31/4 for Pa and 4¢ for Galvanized. In carload they nominally quote 3¢ and 31/¢ re ively. It is said that these prices are by manufacturers to 2.90¢ for Painted and 3 1/4 for Galvanized in large lots. market is so badly demoralized that no can be named that will positively cove dealings of the entire trade.

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Nails. - During the early part of las jobbers reconsidered their hasty as made on Nails the Saturday previo reduced the price to \$2.10 for Iron Na \$2.20 for Steel Nails in small lots from During the flurry quite a good many were booked at \$2.15 and \$2.25, an agents instructed to adhere closely

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urers there is reason to believe that another advance will be made at their meeting this last week after more calm deliberation was considered too great, thereby giving oppor-tunity for favoritism, which caused them to reduce the price to a shorter profit and a regular market. It is now their purpose that when a change is made by manufacturers a corresponding change will be immediately adopted by jobbers. There is a brisk trade doing in both classes of Nails. Stocks are not large, but in fairly good as-

American Pig Iron.-The feeling which governs the Pig Iron market at present is very different from that of the several past weeks. It was the general impression among dealers that the market had settled down into a quiet period of perhaps 60 days. Trading had actually become dull compared with July and August, but prices remained vanced on some of the cheaper grades, not-withstanding the fact that sales had fallen off fully 50 %. Buyers during this period were making inquiries and offers, but we that present prices are the most favorable that can be obtained on Iron for delivery buyers placed large orders during the week, this market, with the exception perhaps of that they are holding their price at the top quotation, and while there has been no advance there are but few brands that could be bought at the lowest price current during the past month. On some brands which are nized Iron in the jobbing trade. now selling at prices named there would be an increase of 50¢ P ton for that particular furnace-makers and railroads, but have not make Soil-Pipe and Plumbers' Iron Fittings, brand without changing the figures at which choice brands have been steadily held during the past four weeks. The quantity of Charcoal Iron has diminished very greatly under the favorable prospects, and other brands are held on a more regular basis. In addition to a good carload trade there are buyers in the market for lots ranging from 500 to 2000 tons of Charcoal and Foundry Irons, on portion of which deliveries have been specified to begin with December to March. Upon such orders furnacemen generally are unwilling to quote, but when prices are named the advance ranges from \$1 to \$2 \$2 ton. Lake Superior Charcoal Irons are held with considerable strength at \$19.50 @ \$20, four months, and \$20.50 for choice brands. Coke Irons have stiffened up very much in the last week, though quotations are still held at \$19 @ \$19.50 Buying has not been quite equal to the product on this grade of Iron, and several furnaces which were some time ago inclined to shade this price are now so well sold up that the figures apply on all first-class Coke Irons. Ohio Standard Blackbands are firm at \$19@ \$20.50, there being but several brands that can be bought below \$19.50, and these only in limited quantities. The most noticeable feature in the market for the week is the increased price demanded for Southern Irons. Furnacemen have shoved up thei. price from 50¢ to \$1 a ton on all grades, but as the Iron was not saleable here at a lower that changes hands is done through trading figure they cannot expect to do an increased business at the advanced price. We quote as present asking prices on Southern No. 1 Foundry \$18; No. 2, \$17 @ 17.50; No. 2½, \$17; No. 3, \$16.50; No. 1 Mill, \$16, cash, No. 1 Wrough f. o. b. It is said at these figures Hanging Rock and Mahoning Valley Irons have the preference over all brands, almost totally excluding the Iron from 'the market. The figures are so much out of the range of buyers' views, and sellers are so prescribed in their actions, that sales of importance are very infrequent.

weak prices have caused many of them to order only in small lots. Latterly they have begun stocking up, and jobbers note a better business to the retail trade. Railroad orders have been fairly good recently, with prospects of an increased demand from machinery manufacturers. We quote as follows in small lots: Low-grade Tool Steels, 7¢; standard brands, 71/2¢ @ 81/4; Crucib's Machinery, Round and Flat, 414 @ 51/2 ; Spring Steels, railroad sizes, 4¢; Open-Hearth and Bessemer Steels, 21/4 @ 3#: Plow Steels, 41/2 @ 54.

There is also a very fair demand for small

Steel Rails.-The only recent important

for fi st quality, and \$34.50 for seconds. Structural Iron.-With the exception that trade continues to be very good for facturing sites at reasonable valuations. Slaps from yard, no new features have developed during the week. New buildings Pig Iron on which to base reports of an adprobably see the fires lighted. The ma-

lots to be delivered this fall which local mills

and new bridges which have been on the bination price, 3 10¢; store price, 3.50¢; @\$14.25. Angle Iron, 2.40¢; T Iron, 3¢; Flitch Plates, 21/20 @ 23/4.

Bar Iron.-The advance price established on Bar Iron at the love feast of the sustained. We understand that buyers have done considerable shopping during the past week for the purpose of breaking the 1.80¢ @ 1.90¢ rates asked on all grades of Merchant Bar Iron without success. While Works' yard is about cleared of Pipe, and there is undoubtedly a difference in the for certain sizes orders are booked considerable the same quality of Old Rail Iron and Best Refined, prices have become so nearly equal from the increased cost of old material that steady and firm on all Irons and slightly ad- selling at the same price is compulsory. Taking the entire schedule of sizes the scale of Refined Iron is advanced about 5¢, and on Common Iron 10¢ ? 100. The number of buyers who will hear of no cases in which they were successful in breaking the market. From the grades from store are very limited. All results of such efforts buyers were convinced mills quote 1.70¢ rates, but there still exists the feeling that this price would be shaded to 1.65¢ under pardonable circumstances. this fall, consequently quite a number of How well these figures will be maintained depends almost entirely upon the demand, greatly to the surprise of furnacemen If buyers continue to press their orders upon and sales agents. In Lake Superior the market during the next 30 days as they and sales agents. In Lake Superior the market during the next 30 days as they Charcoal Iron all the furnaces tributary to have in the past two weeks, it is generally believed that prices will advance to a 2¢ two, have apparently sold so much Iron base rate. All mills in the West are rethat they are holding their price at the top ported full of orders, many of them running are capital has been secured for a project night and day.

> Galvanized Iron.—There has been a agents have had a fairly good demand from much call from the jobbing trade. In price the market presents a more regular appearance, mills asking about the same figures for immediate delivery. Jobbers quote Juniata from store 60 and 5 % off, Charcoal 60, 10 chine shop. Several large mining concerns and 5 % off.

Old Rails.-The scarcity of Old Rails and the eager demand on the part of mills have held the market decidedly firm and added 50¢ to the lowest price named last week, the price now offered being \$22.50 @ \$23. The figures bid, however, do not represent the exact situation, as \$23 has been ploy considerably larger plants. offered on a lot of from 2000 to 3000 tons and refused, and again it is rumored that sales have been made at \$24 and also at \$25 P ton, but not verified, though obtained from a gentleman in a position to know the exact facts. Rolling mills claim that the conversion of Old Rails into Bar Iron at these figures is impracticable, and, further, that they will be compelled to work new Iron before iong unless there is a decline in the price now asked. Old Steel Rails. mixed lengths, are quoted \$19 @ \$19 50; full lengths, \$20 @ \$20.50.

Old Wheels .- The demand for Old Wheels is fairly good at \$15 50 @ \$16, cash. The figures are not satisfactory to parties who have stocks to sell, therefore very few sales uave been made. Car-Wheel makers are the principal buyers, and much of the stock

Scrap Iron. - Dealers report an excellent Ohio Valley, Pittsburgh and all points West. 1 Mill, \$15.50; No. 2, \$9.50; Car Axles, Clean, \$8 @ \$8.50.

Messrs. Forsythe, Hyde & Co. were ap-Merchant Steel.—The increased demand for all classes of Iron has stimulated buying among merchants carrying stocks of Ear Steel. The irregularity in trade and state of the formulation of the furnace is located at Meta, Ohio, and produces about 300 tons of the furnace is located at Meta, Ohio, and produces about 300 tons of the furnace is located at metallic consuming points and specified in this article since our last report is a disposition on the part of some large consumers to contract for their entire supply reports concerning the gathering and growpointed Northwestern sales agents for the per week.

Birmingham.

BIRMINGHAM, ALA., September 20, 1886, South Alabama's prospects for this fall and winter are a little damaged by rust in the almost matured cotton crop. Receipts will be cut considerably short, probably low last year's figures. Business is taking on a fall complexion, and promises for the rest of the year are good. This month's business here will hardly equal last month's in volume, but will far exceed any previous September's, and merchants are stocking for transaction in the Steel Rail market was the a much larger trade throughout the fall order of the C., B. & Q. Railroad for 20,000 and winter than they have ever done before. tons placed with the North Chicago Rolling | The coming of new jobbing houses, including Mill Company for 1887 delivery, contrary to one in an important new line, is one of the rumor, which had accorded this order to surface signs of the well-grounded faith in Carnegie. The Rails are to contain 25% the future of this place as a distributing in the price of ordinary Rails. While it is most noteworthy of these was a visit from yet too early to expect a large demand for several Pennsylvania Iron masters of the grades go down. next year's delivery, there are nevertheless | Connellsville district, and the submission of quite a number of orders seeking makers. propositions and counter propositions between them and owners of Iron properties, some of whose offers they still have under cannot touch. A nominal quotation is \$37.50 advisement. An event of some consequence is the beginning of work on a belt railroad,

vance of prices. Sales are small and not the past month have been closed, for which and all the business taken is for immediate part of the material will be required this delivery. No. 1 Foundry Iron is every-fall. We quote Beams and Channels, com- where held at \$15, and No. 2 at \$14

Finished Iron.-The Birmingham Rolling Mills have started up their Sheet mill, which was stopped by an accident some weeks ago, and found a large volume jobbers 10 days ago has thus far been well of business on the books awaiting its resumption. There is an active demand for Plates, Bar Iron, Rails and Railroad Fittings.

Cast Pipe. - The Birmingham Iron erably ahead. Prices, nominally the same

now as six months ago, are stiff. Miscellaneous. - Good orders are positively going begging from one shop to another. The De Bardeleben Cast Iron Company, the Pioneer Mining and Manufacturing Company and the Sheffield Furnace Company have all found it difficult to get bids here on furnace materials. The manager of one concern, the Sun Iron Works, has declined invitations from all those to make figures. The Linn plant will be practically prevented from taking custom work for a long time, and this fact will increase considerably the present press of work. The Pratt Coal and Iron Company, which own it, will keep it busy for the next two years on their four furnaces and Steel works, one of which they are now in a position to ern capital has been secured for a project that will probably plant several enterprises Galvanized Iron.—There has been a on favorable sites near the city. The necesslight falling off in the demand for Galvasary papers have been filed for the incorporation of another promising concern, the Milner & Kettig Iron Works Company, to both cast and maileable, and also to operate an extensive machine shop. Mr. Richard Church, from New York State, has perfected his plans for tool works and mahave taken bids for hoisting machinery to equip new openings which they find it necessary to make, and one concern has taken several orders for pumps for the same purpose. The two bridge concerns, the chain works, stove works and gin works all have business booked that would sufficiently em-

Chattanooga.

Office of The Iron Age, Carter and Ninth Sts., CHATTANOOGA, September 20, 1886.

Commercial travelers are reporting an unusual degree of activity in their respective lines, and say that merchants as a general thing require but little persuasion to make purchases of respectable bills. In many places in the South minerals, clays and various earths that have long lain dormant are being looked into and thoroughly investigated, and if of any commercial value are being turned to account. The question of railroad building is also receiving much attention. The comparative economy with which roads can now be constructed as compared with a few years ago is an incentive that has caused many local places to reach out and connect themselves with the main lines. Furnace building is now receiving an impetus in the South never before known demand for all grades of Scrap from the Birmingham, Sheffield and Chattanooga are all receiving the benefits of new enter-No. 1 Wrought is quoted at \$18 @ \$19; No. prises in this line, and are each vieing with the others as to the natural advantages they \$22; Horse Shoes, \$16.50 @ \$17; Cast possess. Some opinion may be formed of Scrap, \$13, net; Stove Plate, \$9; Wrought-Iron Turnings, \$11 @ \$12; Cast Borings, furnaces when it is known that there are at the present time no less than 17 new furnaces under construction and companies matured about ready to go to work.

for the coming year at prices that are now ruling. This might be a safe thing for the furnace proprietors to do, as it is conceded that most of them are making some money, but as yet no sales of this character have been reported, and the producers are satisfied to enter contracts for two to four months ahead. The very fact that such long contracts on the part of consumers are being offered evidently shows that it is their opinis still a troublesome factor in this district with the furnace owners, although it would seem unnecessary, situated as the furnaces are almost in the midst of Coal seams.

Many minor markets are opening up through Arkansas and Texas by the building of small foundries in some of the towns, and the aggregate sales to these points amount to considerable. Prices remain firm at \$14.50 @ Charcoal Iron, and have been contracted for point. Several things have occurred in the on private terms which would cut no figure last week to encourage manufacturers. The \$15 for No. 1 for large lots, and a corresponding difference of about \$1 as the

Miscellaneous .- It is now quite well settled that a new 100-ton furnace will soon be commenced by a local company composed entirely of business men of this place. stock has all been taken, and work will be commenced as soon as some preliminaries which will bring in a good many manucan be gone through with. The completion facturing sites at reasonable valuations.

chinery that is being put in the Lookout advance will be made at their meeting this days for several weeks have not been setweek. The price first named by jobbers thed, but several contracts from distant entirely on the bull side of the market. points that have been held in abeyance for Better prices are realized in all cases now, and it is expected to be in operation some time during the coming month.

Cincinnati.

CINCINNATI, September 20, 1886.

Pig Iron. - A most active week has been experienced by dealers, and a strong and confident tone has prevailed. Since our last report Cincinnati has sold upward of 15,000 tons of Pig Iron of different makes and various grades, and about one half of which has been sold in 1000-ton lots. The demand has been well distributed, but there has been rather more inquiry for Mill Iron instances have avoided the increased rates than at any time since the late activity commenced. Southern furnaces which accepted orders early in the week on a basis of \$16 for No. 2 have withdrawn or will book new business only at an advance of 50¢ P ton. The Ohio and Pennsylvania furnaces were quite free for sellers for a few days, but so active has been the demand that all surplus stocks have been disposed of or are held for higher prices, the Northern stacks in this particular following the lead of the Southern producers. It is evident that consumers have recognized the strength of the situation and have seized the first opportune time to buy, the lull of the past two weeks inviting purchases by watchful and careful buyers. The Pipe works of Newport have this week entered the market, taking 2500 tons, largely Gray Forge Iron. This concern has recently been buying quietly in few hundred ton lots, but doubtless catching the commence operations; the capacity of these stacks is comparatively small, from 35 to 40 tons daily, but one will probably make 85 to 100 tons; several old furnaces are also making preparations to blow in. The prospect of an increased production coming upon larger stacks at the furnaces, which is reported, is not flattering, but the developments of the past week prove the statistical position to be much stronger than has heretofore been claimed. The accumulation of Iron at the furnaces last month was probably in preparation for making deliveries upon contracts not then in force, and may also have been due to the difficulty experienced in obtaining cars for transporta-tion, which inconvenience and annoyance has not yet been fully removed. The latest reports are to the effect that Southern furnaces had, toward the end of August, but a two weeks' run on hand. If this be so, the accumulation claimed must have been in other sections which have lately been supplied with such orders as have materially strengthened their views. As to the Iron held upon speculation, there is as yet little apprehension, as the holders of this Iron, having purchased largely on a higher basis than \$16, and having been entailed by carrying charges, are not disposed to market at present, especially as the prospect is bright for higher prices, which will exempt them from loss, if not net a profit on the investment. Weak holders have probably been weeded out some claimed to cover additional cost of production. Taken all in all the week under re-Iron obtainable except for future delivery.

A notable feature of the past week's buying has been the cash sales, or for delivery commencing immediately. It is rate of consumption there will be little claimed that Cincinnati distributes annually over 500,000 tons of Pig Iron, and that she has doubled her tonnage of this kind in the past four years. The estimate includes the Iron sold by Cincinnati dealers reports concerning the gathering and groing crops of produce are received; the clearing-house exchanges throughout the country continue to show gains over corresponding periods of last year, and railroad earnings are evidently increasing; these facts, together with many minor points, afford an accurate measurement of the business situation. The trade movement takes

	Charcoal Foundry			Ł
	Hanging Rock, No. 1 Hanging Rock, No. 2 Southern No. 1 Southern No. 8	\$19.50 @ 18.50 @ 18.00 @ 17.00 @	\$21.00 20.00 18.50 17.50	
1	Coal and Coke Found	ry.		ŀ
the contract of the last of th	Ohio Soft Stonecoal, No. 1. Ohio Soft Stonecoal, No. 2. Southern Coke, No. 1. Southern Coke, No. 2. Southern Coke, No. 3. Ohio and West Pennsylvania Coke, No. 1. Ohio and West Pennsylvania Coke, No. 3. No. 2.	17.00 @ 15.50 @ 17.00 @ 16.50 @ 15.50 @ 17.50 @ 17.50 @	17.50 16.50 18.00 17.00 16.00 19.50	1 1 1
Ì	Forge.			1
-	Strong Neutral Coke Mottled Southern Coke, Cold Short Car-Wheel and Malleable	14.50 @ 18.50 @ 14.00 @ Irons,	15 50 14,00 14,50	1
-	Southern Car-Wheel	21,00 (%) 96 00 (%) 20,00 (%) 22,00 (%)	24,00 27,00 22,00 23,60	20.70.70.70
1	Manufactured Bar and Si	beet Ire	m	*

plied with orders, and a firm and confident feeling is manifested by both consumers and sellers of the manufactured product. Common Bar Iron, 1.65¢ @ 1.75¢; Charcoal Bar Iron, 2.65¢ @ 2.75¢; Sheet Iron, Boiled, Nos. 10 to 27, 2¼¢ @ 3¢; Sheet Iron, Charcoal, Nos. 15 to 25, 2½¢ @ 4¢ ₽ lb.

Old Rails.—There has been a moderate demand for Rails, but Wheels have been quiet and easy.

Scrap.—For Rails we quote \$21.50 @ \$22.50, and for Wheels \$15.50 @ \$16.

Cleveland.

CLEVELAND, September 20, 1886,

Pig Iron.-A slight advance in prices has been obtained for many lots of Iron sold by purchasing Pig Irons of less than standard purity. The transactions for the week were numerous. The ruling quotations in this

Iron Ure .- The market is very active, although prices have not advanced as anticipated. During the week 16,234 tons were received at the Cleveland docks, exclusive of the 22,481 tons forwarded to in-land furnaces. The somewhat high prices for Ores is explained by the fact that lake carrying rates continue at \$2,35 from Ash-land, \$1.85 from Marquette and \$1.50 from Escanaba. The condition as to stock piles in drift of the market secured the round this market is not much changed. They are amount just prior to the advance. A few kept sold up as far as most of the companies dare offer. A sale of a 4000 ton lot of Nondare offer. A sale of a 4000 ton lot of Non-Bessemer Hematites at \$4.30 is reported.

The local quotations are as follows:

the roctin dissertations are no ton	C (0 .	
No. 1 Specular and Magnetic Besse- mer Ores	\$6,00 @	\$6.50
No. 1 Specular and Magnetic Non- Bessemer Ores	5.50 @	6.00
Dennemet Men		
Red Hematites, Bessemer quality	5.00 @	5.50
Red Hematites, Non-Bessemer qual-		
ity	4.00 @	4.75
Menominee Range, Bessemer quality	5.50 @s	6.00
Menominee Range, Non-Bessemer		
quality	4.00 66	4.75
Locable Dance Over Descense	5.00 @6	
rogeoic mange ores, bessemer		
Ores for Mill use	5.50 @	6,00
Old Rails -The demand is	active	and

prices range from \$22.50 to \$23.75 \$? ton.

Old Wheels.—Buyers still pay \$17 \$?

ton and will take all the Old Wheels they
can get at that price. There is a fair business in all brands of Scrap Iron.

St. Louis.

ROGERS, BROWN & Co., St. Louis, W. H. SHIELDS, manager, report, under date of September 20: There has been some large buying in this market during the week past, and further large transactions are now under way. Last December and January leading St. Louis buyers supplied themselves so fully that new business was light during all the early part of the year. Those contracts, however, are generally running out, and the buyers are again in the field. Some are provided for the remainder of this year, but others still have their purchases to make. They find a stiff market to approach, and the tendency this week seems to be toward greater stiffness. A scarcity of best Foundry Irons is noticed, and with some leading furnaces it is not a question of price, time since. Iron made from Lake Ore has been held higher, the advance asked being grades for months to come. Some Southern furnaces that were the lowest sellers two months ago are now at the top in their prices. The new Ohio Irons continue in view has been the most active of the year thus far, exceeding even the most active general use. There is a little more disposition on the part of the railroads to sell Old Rails, and a little indifference is shown by

\$17.00 @	
	18.00
· W .	
17.00 %	18.00
	17.00
17.00 66	20,00
15.00 @	16,50
14.75 @	15.75
Irons,	
20,00 @4	25.00
21.00 %	23.00
16.00 @8	16.50
20,00 @	21.00
46	5.65
	\$17.00 @ 17.50 @ 17.50 @ 17.50 @ 16.50 @ 17.00 @ 14.75 @ 14.75 @ 14.75 @ 14.75 @ 16.00 @ 21.00 @ 20.00 @ 30.00

Detroit.

CHARLES HIMROD & Co., dealers in Pig ness situation. The trade movement takes a fluctuating course, and the Iron interest is one of the prominent and representative branches. Money has been more readily obfore very long. Consumers seem satisfied that prices will not go any lower, and are willing to place orders for their future needs at present prices when they can find a fur-nace that will make such contracts. There seems to be a scarcity of Southern Coke Iron, and consequently the price asked is higher and consequently the price asked is higher than it was a month ago. There are very few orders being placed at the advanced price. Silvery Irons from the South are almost entirely shut out from this market on account of the price at which they are held, as Scotch Irons and Jackson County Silverys are used in preference when the prices are the same. There has been considered that the state of the prices are the same. prices are the same. There has been considerable inquiry for old material, but few sales reported. For the present we quote as

bers	\$21.50	80	\$24.5X
Lake Superior Coke, All Ore	20,00	8	21.00
Lake Superior Coke, Cinder Mixed.	18,00	40	19.00
Standard Ohio Blackband	20,00	613	21.00
Southern No. 2		66	18.50
Southern Silvery, Open	17.50	96	In.M
Southern Silvery, Close	16.50	33	17.54
Jackson County, Ohio, Silvery		46	150,00
American Old Iron Rails		66	22.0
Old Wheels	16.50	60	17.54

Trade Report.

General Hardware.

The past week has been an uneventful one, there being few changes in prices, and the demand continuing steady and of good volume. Orders are well assorted, and Builders' Hardware and seasonable goods have a prominent place. Reports from retailers generally indicate a good condition of things throughout the country, with stocks that need frequent replenishing. Collections are fair.

NAILS.

The New York Nail market continues in showing a disposition to press sales, while the majority of buyers are holding off, content to await developments. We quote \$2 for small lots from store for Iron Nails, the J. C. McCarty & Co..... usual concessions being made for carload lots on dock. For Steel Nails \$2.10 to \$2.20 UNDERHILL, CLINCH & CO..... is obtained.

The Barb Wire market tributary to New York continues badly demoralized, and prices which we may quote 3.85 cents to 3.90 cents, delivered, for Four Point Galvanized Barb Wire, are lower than all but a few of the makers can produce it. Assuming that the Plain Galvanized Wire can be purchased at 3.25 cents, about 60 cents per 100 pounds must be added for the cost of barbing, so that at present prices all outlays for freight, selling costs, &c., represent a dead loss. We note some indications that manufacturers are growing very tired of this way of doing business. Some large orders have been placed for delivery to the Pacific Coast.

MISCELLANEOUS PRICES.

At the meeting of the manufacturers of Wire Nails, held last Thursday at Pittsburgh, it was decided, in view of the low and irregular prices which have prevailed. to make an advance to 50 and 10 per cent discount. The card rate was fixed at \$3.50. The reports indicated a gratifying increase in the demand for the goods, which are, however, being made at a narrow margin of profit. The fact that the production is already in excess of the requirements of the trade was referred to as the cause of the present low prices, and the probable addition in the near future of a large number of new machines, estimated at nearly 300, was alluded to as not likely to improve the situa-

There is no change for the better in the condition of the Screw market, which is characterized by the low and irregular prices which have been prevailing. The efforts that have been made with a view to some understanding among the leading companies have been thus far resultless.

There is no improvement in quotations on Rules. Most of the manufacturers are selling at extremely low prices, and of late there has been a tendency on the part of some to make lower prices than heretofore, with a view to meeting com-

The market for Iron Rivets is quite irregu lar, and the nominal combination rates are very frequently disregarded, as close buyers can in most cases obtain considerable con

The Grain Cradle and Snath Association will soon expire by limitation, and there is at present little prospect of their continua tion. At its expiration the manufactur ers of these goods will be free to make such prices as they see fit, and the result will probably be lower quotations to the general trade, but with the irregularities that are said to have been practiced, by which the large trade had their orders filled at lower prices than those determined upon by the association, it is not likely that to this class of buyers the goods will be materially lower.

No general advance is announced in Traces, Wagon Chains, &c., but slightly ends, and the point is made that, as the body higher quotations are made by some of the manufacturers, and the tendency is toward somewhat better prices. Coil Chain remains without alteration at the low figures that have been prevailing.

The prices of Bright Wire Rods are main tained firmly by the manufacturers, but irregular prices are frequently obtained from the jobbing houses who had purchased before the advance, or who give away more or less of the liberal margin allowed them

Cast Butts show no special change, but there are indications of a slightly stronger market, and prices are firm.

Manufacturers of common Carriage Bolts are well supplied with orders, and it is hard to get goods promptly. The prices are firmly maintained by the makers, but the many large contracts at the extremely low prices which prevailed before the advance give opportunity for dealers to furnish the goods at concessions of varying extent. The difference between the present prices and that at which the goods were purchased by those who were fortunate enough to have orders in when the advance took place affords a liberal margin for cutting and profit, but holders are not disposed to make very large concessions in view of the firmness of

Tackle Blocks are without further change

have recently prevailed. There is as y no intimation of any movement toward a re-establishment of prices.

O. B. Wilson, Collinsville, Ill., is putting a line of Stock Bells on the market, which in a general way may be quoted at discount 70 and 10 per cent, from the regular list of the genuine Kentucky Bells.

ITEMS.

The following subscriptions have been made through the Hardware Board of Trade for the relief of the sufferers at Charleston ALFRED FIELD & CO......\$100 00 HERMAN BOKER & Co..... 100.00 WALLACE & SONS..... 100.00 McNab & Harlin Mfg Co..... 100.00 a very unsatisfactory condition, some sellers SARGENT & Co..... 100.00 AUSABLE HORSE NAIL CO..... 100.00 RUSSELL & ERWIN MFG. CO..... 100.00 JOHN H. GRAHAM & CO..... 50.00 Schoverling, Daly & Gales..... 50.00 JOHN G. WITTE & BRO..... 50.00 Maltby, Henley & Co...... 50.00 Holmes, Booth & Haydens..... 50.00 Wiebusch & Hilger..... 50 00 F. & W. CLATWORTHY.... KEARNEY & FOOT CO..... 25.00 A. & W. S. CARR CO..... 25.00 WATERBURY BRASS Co. 25.00 C. E. JENNINGS & CO..... 25.00

> As we go to press we regret to learn of the death, yesterday, of S. C. Wilcox, at his home in East Berlin, Conn. Mr. Wilcox was 72 years of age and vice-president of the Peck, Stow & Wilcox Company.

The Nimick & Brittan Mfg. Company, Pittsburgh, Pa., for whom John H Graham & Co., 113 Chambers street New York, are agents, issue a circular in regard to the numbers designating the finish of their goods. From this it appears that their genuine Bronze goods are finished in 15 styles, their Iron goods in II, and their Brass goods in five.

The price list of the United States Car tridge Company, Lowell, Mass., is attractively printed, and shows the line of Rim Fire and Central Fire Pistol, Rifle, Military and Sporting Cartridges, Brass and Paper Shot Shells manufactured by them.

The Lansing Wheelbarrow Company Lansing, Mich., call the attention of the trade to their Luther Patent Stove Truck. The lightness and simplicity of this Truck, the ease with which it is adjusted and the efficiency with which it does its work, as well as the small space it occupies, are points specially alluded to. It is also in timated that a low price as compared with the price of other Trucks will be made.

Brown & Hirth, Pittsburgh, Pa, issue a catalogue describing the line of Guns, Rifles, Revolvers, Gun and Rifle Barrels, Ammunition, Sporting Goods, &c., of which they are manufacturers or dealers. They call attention to the fact that they are the proprietors of the Enterprise Gun and Machine Works, and the only dealers in Pittsburgh or Allegheny County who manufacture their own Gun Barrels, alluding also to the Kentucky Muzzle loading Rifle, which bears their trade-mark. Attention is also called to their repair shops as fitted up with the latest and most improved machinery. The catalogue gives 80 pages of fully illustrated and carefully-arranged matter.

Our readers will observe the announce ment on page 16 in regard to the Champion Patent Side Spring of the Penfield Block Company, Lockport, N. Y. The names given of parties handling these Springs will be of interest. The Springs are described as made of the best Swedes steel, oil-tem ered. They have, it will be observed, but one leaf in the center, the same as at the ests on the cross-bars about 11 or 12 inches from the ends of the Springs, they must, when carrying a load, spring in the cente the same as at the ends, thus giving more inches of elasticity than are found in other Springs. The ease of riding when they are used is also alluded to, and the claim is made that they will stand more hard driving over all sorts of roads than any other Spring. The manufacturers advise us that they are desirous of securing the address of dealers and manufacturers who are unacquainted with the Champion Spring and its improvements, whom they will take pleasure in informing in regard to them.

One of our subscribers writes as follows in regard to the condition of business, and some of the features of trade as he finds it :

Trade is looking up, as it naturally should at this time of the year, Stoves being the particular article in demand. It is somewhat amusing, but also sad, to see the confused expression upon the faces of husband and wife after making a tour of the Stove stores in search of a heater. They have seen four or more different makes of stoves, both square and round, have heard 12 or 16 prices; heard some Stoves praised, and others defamed; have been told that brass jacket was better than iron and that iron was better than brass, because nickel would wear better on iron; that titled "An act to amend the customs the items for boxes and packing in the influes down the front were better than flues revenue laws, and to repeal moieties," ap-

into your store, and are turned over to your salesman, who is eager for the fray, and estimated in ascertaining the value of talks as gibly as if he had not repeated the same things, in the same way, about the of the usual and necessary sacks, same Stoves to 20 people the same day.

The advanced price on Nails is being adhered to, as far as I can learn. There seems to be no disposition to cut on goods generally—in fact, I do not know that there s any chance to cut.

A Hardwareman inquires for some enamel or coating for the nickel-plating on stoves, and says: "Dealers are often obliged to carry over stoves until the next fall, and obliged in many cases to keep them in cellar, and if kept in dryer places moisture from the hand often leaves a mark of rust. Then people examining stoves on the floor put moist hands on the nickel-work. If the Transparent Enamel referred to by the Hartford Silver Plate Company, or something else, would secure nickel against disfiguration until a fire was put in the stove it would be a great thing for the retailer.'

The announcement on page 18 of the auction sale of Cutlery by Haydock & Bissell, on Tuesday and Wednesday, September 28 and 20, at 10 o'clock a. m., deserves the attention of the trade. This sale will comprise a large assortment of Table Cutlery Carvers and Butchers' Knives, being the balance of the stock of the Bridgeport Knife Company which was on hand at the time of their assignment. Also by order of the manufacturers 12,000 dozen Table Knives, Forks and Carvers. The entire catalogue will be sold without reserve.

The organization of the Kansas City Hardware Company, Kansas City, Mo., is announced, with a paid-up capital of \$125, 000. Of this company, T. U. Townsend, formerly of the Springfield Hardware Company, Springfield, Mo., is president; J. A. Bayles, vice-president; W. D. Rempert, secretary, and E. F. Mulholland, treasurer. They purpose doing an extensive jobbing ousiness in the various lines of Hardware, putting a number of traveling men on the road, and are now having erected a fivestory double bullding, which it is expected will be open for business on January 1.

The Steel Nose Trucks manufactured by Byram & Co., Detroit, Mich., besides the feature alluded to in our last issue, are described as made with wheels which are the full size called for in the description of the Trucks. Thus, a 101/2-inch wheel is stated to measure 101/2 inches, instead of being nominally so, as with some goods on the

THE DUTY ON COVERINGS.

The following is the full text of the pinion of Acting Attorney General Jencker which has been rendered to Assistant-Secretary Fairchild, as to what coverings on imported goods are dutiable under the various provisions of law, and the decision of the United States Supreme Court in the Oberteuffer case. Con:plaint had been made by importers that recent rulings of the Treasury Department had been inconsistent with this decision, and were, it is claimed a practical reversal of it. The whole mat ter was accordingly referred by Mr. Fair child to Mr. Jenckes, who has very carefully considered it, as evidenced by the opinion which is given herewith. It will be seen that it gives a more liberal interpretation to the Oberteuffer decision than the Treasury Department has heretofore been disposed to entertain, and that the outcome in all probability will be that nearly all classes of coverings used in good faith for purposes of transportation will be exempt from duty. Though of great importance as regards beavy Hardware ar icles, the question is one of general interest and has more or less bearing on all imported goods. Mr. Jenckes's opinion rendered to Mr. Fairchild is as follows:

Your communication of the 2d inst. subnits for consideration four subjects:

I. "As sacks, boxes and other receptacles hich are ordinarily used in the importation of merchandise would, if imported separately, be dutiable under the respective pro vision of the tariff applicable thereto, the their dutiable character by being filled with for use otherwise than in the bona fide trans or used for the transportation of such

2. In the case of Oberteuffer vs. Robert son, No. 1192 of October term, 1885, in the Supreme Court, in considering the seventh section of the act of March 3, 1883, the following language is used: "This implied that if the boxes or coverings of any kind are not of material or form designed to evade the duties thereon, and are designed w be used in the bona Ade transportation of the goods to the United States, they are not subject to duty." With reference to which you state, "I will thank you for an expresion of your opinion as to whether the statement of the Supreme Court, that such coverings are not subject to duty, should be considered as mere dictum used in the process of argument, or as an authoritative expression of the views of the court.

3. "The fourth provision in said Section 7, by which a duty of 100 per cent. ad valorem is authorized in certain cases, as above referred to, is also for your consideration." "The question of the proper interpretathe bona fide transportation of the goods to the United States, they are not subject to tation of the proviso in Section 7 is also submitted for your consideration."

The solution of the questions submitted

depends upon the true interpretation of the seventh section of the act of March 3, 1883 That section provides: That Section 2907 and 2908 of the Revised Statutes of the United States, and Section 14 of the act enother provisions of existing laws, shall be

of the usual and necessary sacks, crates, boxes or coverings of any kind be estimated as part of their value in deter-mining the amount of duties for which they are liable. Provided, that if any packages, sacks, crates, boxes or coverings of any kind shall be of any material or form designed to evade duties thereon, or designed for use otherwise than in the bona fide transportation of goods to the United manded a reappraisement under Section States, the same shall be subject to a duty 2930, rules the objection not well founded, of 100 per cent, ad valorem upon the actual value of the same." By this section what-ever in Sections 2907 and 2908 of the Revised Statutes, and the 14th section of the act of June 22, 1874, was included as charges is excluded from the estimate in fixing the dutiable value of the goods to be

mported.

The three sections repealed by the section quoted embrace as charges "the cost of transporation, shipment and transshipment, with all expenses included, from the place of growth, production or manufacture, whether by land or water, to the vessel in which shipment is made to the United States; the value of the sack, box or covering of any kind in which merchandise is contained. any kind in which merchandles is contained.
commission at the usual rate, but in no case
less than 2% per centum, and brokerage.
export duties, and all other actual or usual
charges for putting, preparing and packing
for transportation or shipment." When
these charges are excluded, "the goods to be
imported are left to be valued at the actual market value, or wholesale price thereof, at the period of the exportation to the United States, in the principal markets of the country from which the same has been exported." Taken in connection with the provisions of Section 2906, Revised Stat utes, which remains unrepealed, the effect of Section 7 of the act of the 3d of March, 1883, is to make the dutiable value the same as "the actual and market value or whole-ale price" in the principal markets of the country from which the goods were exported at the time of the exportation Hence the market value of the goods to be imported, as above stated, as the law now stands, is identical with the dutiable ow stands, is identical with a value; nor can any of the charges above stated be added to that value for the purpose of charging duties thereon. Sacks. pose of charging duties thereon. Sacks. boxes and coverings of any kind in which merchandise is contained are embraced among the charges which are not to be included with the value of the goods. As the statute in the broadest terms excludes all these, it is not permissible to add to its terms either the words "inside" or "outside." The exemption extends alike and with equal force, to both inside and outside sacks, boxes or coverings of the mersacks, boxes or coverings of the mer-chandise. But the same sacks, boxes or coverings, if imported separately, would be subject to duty. The inquiry arises whether each is not to be charged with a duty, when used as the covering to other dutiable merchandise, as though separately imported i Did the legislative power so extend it? The Revenue act of 1883, of which Section 7 is a part, was intended to reduce the revenue of the Government, which had become excessive. To reduce taxation on imports was the means adopted. The in-creased dutiable value of the importations occasioned by adding the value of coverings, &c., under Section 2907, if stricken off entirely, would be a large reduction, but if the coverings were only to be separated for puroses of duty from the value of the goods and then taxed at separate rates, whether such a measure would increase or decrease the actual tax would be very uncertain. It is unlikely Congress would intend a reduction and pass an act which was subject to such uncertainty as to results. Simplicity in administration is an important element of judicious tax bill The collection of dutie under Section 2907, which was repealed, would be more casily administered than un der the act of 1883, if the duties on the coverings were only intended to be changed as to rates to be levied. The coverings were not by former laws subject to taxation except as charges on the goods imported yet under the former law they would have been liable to taxation if separately imported. The mere repeal of the charge cannot be considered as an enactment of a duty or that which before the repeal would not hav been subject to duty. The proviso to the section under consideration suggests beyond section under consideration suggests beyond mi-take that a separate levy of the duty repealed was not contemplated by Congress. That provise is "that if any packages, sacks, crates, boxes or coverings of any kind shall be of any material or form de igned to evade dutie portation of goods to the United States, the same shall be subject to a duty of 100 per cent, upon the actual value of the same." If the same tax was intended to be imposed upon a given article, whether it was used as a cover-ing for other goods or imported separately. it is not possible that Congress would have imposed a penalty for an evasion which under such an interpretation of the law could not occur; but if when used as a covering it came in free from duty, and when separately imported was subject to duty, there would be a temptation for a duty. colorable and fraudulent use as a covering in order to evade duty. The proviso was intended to prevent such an evasion. That the charges repealed by this section are not subject to a separate tax is distinctly ruled in the case of Oberteuffer es. Robert son, in the following language, as quoted in your letter: "This implies that if the boxes or coverings of any kind are not of a material or form designed to evade duties thereon, and are designed to be used in

"The main question left in the case is whether it was lawful to impose duties on Tackle Blocks are without further change in price, being held with more or less regularity at the extremely low prices which lired, bewildered heart-sick pair stumbles charges imposed by said sections, or any packing."

established by the fact that it is a distinct

answer to what the court in the opening

of the opinion says is the main point in the case, as follows:

That this is not dictum is well

duty

The brief submitted in the case by Solicitor General Goode on the part of the Government declares:

"It will be seen that the plaintiff's pro-test stated substantially but a single ground of objection to the collector's liquidation, which was that the cartons were not liable to duty "

The court again, after a discussion of an objection raised by the Solicitor General that the plaintiffs in the case had mistaken their remedy, in that they had not deand concludes the discussion of this branch of the subject by saying:
"The exaction of the duty on the pack-

ing, whether packing goods in a carton, or the cartons in the outer case, or lining the outer case, was not warranted by law."

Hence it would seem the very subject

was distinctly before the court, considered by it as essential to a proper decision of the case, was formally ruled upon, and thus became an authoritative interpretation of the section under consideration. But while Section 7 does not permit a separate assessment of the boxes, coverings, &c., nor an assessment as part of the value of the goods, in order that this freedom from duty may not be fraudulently or wrongfally used to import dutiable goods free, the provise of the section was added by which a penalty of 100 per centum ad valorem is imposed whenever such an invasion is attempted. This penalty is only incurred, first, when the cov-erings, &c., "shall be of any material or form designed to evade duties thereon;" when designed for use otherwise than in the bona fide transportation of the goods to the United States." The first cause for the imposition of the penalty commits to the officer charged with the administration of the law the duty of determining from the character, value, form and material whether the purpose and design of the covering was an evasion of duty or a good faith covering. If the covering in either material or form is unusual and dutiable under other provisions of law, he is allowed to other provisions of law, he is allowed to infer, when its character is thus extraor-dinary, that evasion is designed. The second ground for the imposition of the penalty re-quires the officer to determine whether the quires the officer to determine whether the covering was designed, at the time of its application to that use, to be used again for the same or some other use of substantial commercial value, for which, if separately imported, it would be subject to duty, or whether its utility will be substantially exhausted as soon as it shall have subserved the use to which as a covering it is then devoted. In the former event the penalty of too perthe former event the penalty of 100 per cent. should be collected. In the latter it should not. The mere fact that it is continued after importation as a covering for the same merchandise calls for no penalty.

The law does not contemplate that as soon

as the merchandise reaches the port and pays the duty it shall then be denuded and new covering, either inside or outside, be provided to protect it either in handling or sale; neither is there any time nor place after the importation that the same covering, used for the same merchandise, as coving, used for the same merchandise, as covering, from which or in which to make sale of the merchandise, would show that it was designed for use for importation, so as to subject the covering to a duty at the rate imposed as a penalty in the proviso; nor would the fact that a box might possibly afterward be used for fuel, or the covering for some other use, subject the box or covering to a penalty unless there is reason to believe such use was designed and contem-placed at or before the time of importation. From this general consideration of the subject the conclusions follow:

1. That the sacks, boxes and coverings of any kind, the duty on which was repealed as charges by the seventh section of the act of March 3, 1883, are not subject to duty, neither as a part of the value of the goods or separately, except when they come under the proviso to that section or some special provision of law.

2. That the portion of the opinion in the

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are

case of Oberteuffer vs. Robertson quoted in your letter is not dictum, but an authoritative interpretation of the law on the subject referred to therein.

3. That the 100 per cent. ad valorem can be imposed upon coverings only when their material or form justifies the conclusion that they were used as such to evade duties, or when they were designed or contemplated to be applied to some use other than to that of coverings for transportation to the United States of the merchandise they then inclose, even though that use as a covering only should continue after the goods had passed

4. The mere fact that the boxes, sacks, crates or coverings of any kind might possibly be used after importation for other uses, if such uses were not designed at or before the time of importation, and there was not at the time a design to evade duty by their use as coverings, will not subject such coverings to 100 per cent. duty prescribed as a penalty.

The 100 per cent. duty in the proviso although not in terms a penalty, is an unusually high duty. The section under con sideration clearly excludes the coverings from valuation as a part of the goods. The second element in the proviso to the section implies no turpitude on the part of the importer. In balanced cases in a cus-toms act the doubt is to be resolved in favor of the importer. Hence, although the coverings, after the port is reached, might by a literal interpretation be construed, if tended for use after as a cover to the same goods, to be designed "for use otherwise than in the bona fide transportation of goods to the United States," yet such an interpretation, while within the letter, would be a violation of the spirit of the act.

Mr. Richard T. Barton, who is an employee of Andrew M. Smith, manufacturer of sewing machine needles, of New Haven. Conn., has invented a machine for straight ening bar iron used for the manufacture of cold punched nuts. He has received a pat-ent for it, dated August 10, 1886, No. 346,-881, which he has assigned to Andrew M. 884, which he has assigned to Andrew M. Smith and to G. H. Allen of Hamden, Conn. It consists of a flanged drum driven by gearing, the drum having a notch on its face, and formed with a radial offset on one side of the notch. The straightening is done by a series of adjustable grooved rolls, and another alternating series arranged at right angles. The machine has been in operation sufficient to prove its practicability, but is now stored for lack of room.

Imports.

The following were the Imports of Hard New York for the week ending September Bundles, 100 Wire rods, pgs., 1848 Wire rods, coils, 29,504 Crop ends, tons, 300

	reek ending September
22, 1886 ·	
Hardu are.	Bundles, 100
Boker Carl F.	Wire rods, pgs., 1848 Wire rods, coils,
Cks., 20 Boker Hermann & Co.	29,504 Crop ends, tons, 300
Mdse., cs., 11	Scrap, tons, 80
Mdse., cs., 11 Booth & Co. Mach'y, cs., 2 Curiey J. & Bro.	Steel.
Curley J. & Bro. Mdse., case, 1	Abbott Jere & Co
Mdse., case, 1 Cowles E. S. & A. Dynamo machines.	Packages, 38
16	Rods, coils, 1500
Drexel, Morgan & Co.	Boker Carl F.
Duvivier & Co.	Connal R M C
Arms, cs., 18 Duvivier & Co. Mach'y, cs., 2 Field A. & Co. Mdso, cs., 40	Packages, 91 Downing R. F. & Co. Slabs, 2000
Mdse., cs., 40 Frankenberg,	Slabs, 2000 Cases, 8
Iron spools, case, 1	Bundles, 650
Gerdan Otto, Mdse., case, 1	Heyn Alfred, Rods, pgs., 119 Muller, Schall & Co.
Mdse., case, 1 Godfrey C. J. Mdse., cs., 4	Muller, Schall & Co.
Graef Cutlery Co.	Rods, pgs., 919 Newton & Shipman,
Mdse. cs. 8	Bundles, 44
Junge H. Mdse., cs., 3 Merch. Desp. Co.	Bars, 16 Pilditch F. S.
Merch. Desp. Co. Arms, cs., 5	Packages, 180 Power C. W.
Arms, cs., 5 McCoy & Sanders, Mdse., cs., 2	
Newton & Shipman.	Cask, 1 Temple & Lockwood, Bundles, 12 Bars 21
Pioneer Iron Works.	Bundles, 12 Bars, 21
Mach'y, cs., 10 Schoverling, Daly &	Bars, 21 Wagner W. F. Bundles, 280
Mdse., cs., 27 Schutte W. & Co.	Piece, 1 Plates, 10 Cases, 8
Mdse., cs., 37 Schutte W. & Co. Mdse., cs., 14 Singer Mfg. Co.	Cases, 8
	Order. Barrels, 170
	Barrels, 170 Rollers, 26 Bar, 1
Mdsc., cs., 4 Wiebusch & Hilger, Ironware, cks., 51 Chains, csks, 25 Ironware, cs., 5 Bidsc., cs., 25 Wirths E.	Forgings, 79 Rods, bdis., 8254 Rope ends, lot, 1 Billets, 3000 Blooms, 574
Ironware, cks., 51	Rope ends, lot, 1
Chains, csks, 26	Billets, 3000
Mdse., cs., 25	Packages, out
Wirths E. Ironware. cs., 79 Witte John G. & Bro.	Rods, pgs., 460 Bloom ends, tons,
Witte John G. & Bro. Cutlery, cs., 4	828
Order.	Metals.
Mach'y, pkgs., 25 Cases, 5	Baring Bros. & Co.
Ironwork, pkgs., 22	Boustead & Co.
Iron.	Baring Bros. & Co. Tin plates, bxs., 1079 Boustead & Co. Tin, slabs, 531 Colwell Lead Co. Lead, pigs., 1562
Baring Bros. & Co.	Lead. pigs, 1592 Cowles, E. S. & A.
Baring Bros. & Co. Ore, kg., 380,000 Coddington T. B. & Co. Sheets, bdls., 383	Copper rods, bdls 2 Copper cabies, coils,
Sheets, bdls., 383 Crocker Bros.	0
Crocker Bros. Pig, tons, 200	Field, Alfred & Co.
Ferro iron, cks., 118	Percussion caps, cs.,
Downing R. F. & Co.	Huttenbach Bros.
Ferro iron, tons, 319 Ferro iron, cks., 118 Iron, cks., 69 Downing R. F. & Co. Girders, 81 Holt H. W.	Leggett F. H. & Co.
Bars, 4844	Oil stoves, cs., 415
Bars, 4844 Lillienberg N. Bars, 2911 Morton, Bliss & Co. Galv. sheets, cs., 68	Tin, slabs, 999 Lagrett F. H. & Co. Oil stoves, cks., 153 Oil stoves, cks., 153 Meyer G. A. & E. Zinc oxide, bbls., 800 Phelps, Dodge & Co. Tin plates, bxs., 643 Pim, Forwood & Co. Tin plates, bxs., 44
Morton, Bliss & Co.	Pheips, Dodge & Co.
	Pim, Forwood & Co.
Bars, 5995 Bdls., 971	Pim, Forwood & Co. Tin plates, bxs., 41 Smith J P.
Wire rods, rings,	Oil stoves, case, 1
2897 Spiegil, tons, 200	Oil stoves, cks., 1157 Warren Jno. & Co.
Pig. tons, 1329	Tin plates, hys., 200

Smith J P.
Oal stoves, case, 1
Oil stoves, cks., 1157
Warren Jno. & Co.
Tin plates, bxs., 200
Wheeler, Fellows &
Sparks,
Tin plates, bxs., 437
Order. 2897
Spiegil, tons, 900
Pig, tons, 13:9
Pioneer Iron Works,
Pieces, 9
Stetson Geo. W.
Pig, tons, 151
Williamson Jas. & Co.
Pig, tons, 200
Order, Order,
Tin plates, bxs., 5181
Spelter, plates, 6735
Zinc sheets, cks., 200
Star antimony,
bbls., 100 rig, tons, 200
der.
Pig, tons, 947
Rings, bdls., 8
Spiegel. tons, 2325
Flat bars, 112
Flues, pcs., 4
Cotton ties, bdls.,
4400 Dils., 100 Tin, slabs, 1981 Q'silver, bots., 250 Zinc, sheets, 110 Lead, pigs, 5740 Zinc, cases, 23

The imports at this port of Cutlery, Hardware and Metals during the week ending September 17 were as follows:

Brass goods	Quantity.	Value.
Bronzes		18,728
Chain and anchors	1	52
Copper		5,122
Cutiery		29,860
Dutch metal	12	2,709
Guns		20,738
Gun wads		986
Hardware		700
Iron, hoop ton	1	25
Iron, pig, tons	3,558	39,116
Iron, sheet, tons	31.4	2,459
Iron, spiegel, tons	2,129	42,659
Iron ore, tons	788	1,211
Iron, tubes	2,448	1,583
Iron, cotton ries	2,200	1,888
Iron, other, tons	817	87.066
Lead, pigs		15,143
Metal goods	500	51,087
Nails	1	6
Needles	16	4,397
Niekel	7	5,002
Old metal		5,081
P'atina	9	4,356
Plated-ware	64	8,698
Percussion caps	-6	608
Pins	91	2.051
Saddlery	14	1,158
Steel.	104,950	109, 420
Speiter, D.	168,021	5,064
Tin, brs.	11.268	48,867
Tin, slabs, 7,229 To	747,778	179,197
1) IFM	4704	4 949

Old Metals, Rags, &c.

The purchasing prices offered by dealers

are as follows:	abou
Heavy Copper	who
WELL CODDER W D 65 OB	St
SUPPLY BOLLODIA W ID.	first
Drass, Meavy D Ch .05	
AN ON THE CONTRACTOR OF THE CO	quir
	latte
	by c
	BB C
	railr
	and
	orde
	Sled
	W
	trem
	Vanc
	and
	chest
	wher
Book Stock	vanc
Book Stock D	are i
Newspapers D, 00% 0 01% Waste Paper	prost
Waste Paper Kentucky Bagging	
Kentucky Bagging D. Orl & Orl	good
Kentucky Bale Rope D, .08% @ .04	last,

Louisville.

Pig Iron.-The market is quiet, but prices on some brands and grades are not so strong as last week. The best brands con tinue firm, but sales have been light. Or inferior brands, however, there has been some disposition to shade prices in order to effect sales. The stock of Iron at furnaces continues light, with most producers sold ware, Iron, Steel and Metals into the Port of ahead for several months Furnaces, however, are more disposed to sell for future

	delivery. We quote for cash	in roun	d lots
	as below: Pig Iron.		
	Southern Coke, No. 1 Foundry No. 2 '' No. 216 '' Hanging Rock Coke, No. 1 Foun-	15.50 @ 14.50 @	16.50
	dry	17.00 @	18.00
	FoundrySouthern Charcoal, No. 1 Foundry	19.00 @ 17.00 @	21.00
	Silver Gray, different grades Southern Coke, No. 1 Mill, Neutral	14.50 @	
	" No. 2 " Cold Short	18 50 @ 18.50 @	
Ì	" Charcoal, No. 1 Mill White and Mottled, different grades	16.00 @ 12.00 @	
	Southern Car-Wheel, standard brands Southern Car-Wheel, other brands	22.00 @ 19.00 @	
	Hanging Rock, Cold-Blast	23.00 @ 19.00 @	
	Old MaterialThere has be	en no ch	ange
1	in the demand. Rails continu	e scarce	but

W. B. BELKNAP & Co., Louisville, report as follows, under date of September 20, 1886: Business continues in the even tenor of its way, without any excitement what-ever. We doubt if there has ever been a time when the demand was so large without creating something of a speculative move ment. The causes, we take it, are the extremely low prices prevailing abroad, and the fact that our own manufacturers have been slow to ask or promise large advances, and, unless there is a prospect of really large profit in the near future, the speculator does not take hold. Such advances as have been made in the staples and small articles of hardware have given the purchaser more or less confidence, and there is no disinclination to buy on account of such for legitimate wants.

Nails-Both Iron and Steel seem to have Nails—Both Iron and Steel seem to have passed the low-water mark a week or ten days ago, since which time they have been in as good demand at the new price of 10¢ advance as they were at the old. There is, however, a diversity of opinion as to the possibility of the advance holding, some claiming that, as the capacity of the mills is greater than the possible consumption, any continued stiffening is not likely. On the other hand, both brokers and manufacturers assure us that there is a scarcity of urers assure us that there is a scarcity of the raw material, that Steel stock is higher, and likely to stay so. Between these two opin ions the distracted buyer may take his choice There is a large demand, pretty freely divided between Steel and Iron, with a slight preponderance in favor of the former. Owing to the long suspense of navigation on the Ohio, and the fact that even lighte-t draft packets have not been able to reach Wheeling for several weeks, stocks on the Lower Ohio have been reduced to a low ebb. The railroad is about 4¢ higher than the river. The effect of this has been to throw an extra tonnage on railroad from the Wheeling and Pittsburgh districts, which accounts for the great increase in earnings and the delay in freight which all shippers are now experiencing. We have a written statement to the effect that freight is allowed to he on the platform at Pittsburgh as long as four or five days simply because cars cannot be furnished in which to load it. The earn ings on the Short Line between here and Cincinnati last month are the heaviest known in its history. All this is having a stimulating influence on trade and giving employment to large numbers of operatives.

Bar Iron.—The demand continues of good roportions, and jobbers' stocks are much deplated. It is no unusual thing to Mach'y, page. 1 nuch depleted. It is no unusual thing to find it impossible to secure immediate ship-ment of leading sizes from the ordinary sources and neighboring mills, and special orders in such a state of things, of course, fare worse than regular stock. Still the inclination is to take business and provide for it rather than turn it off, even at the low prices which still prevail.

Sheet Iron.—Heavy Sheets are decidedly firm, and have scored undoubtable advance. Light Sheets are still dull; the usual fall demand for these seem scarcely to have been felt; whether it is simply lack of demand or whether the mills made such ample provision against it that it was impossible for it to advance, we cannot say. We only know that Light Sheets and Hoop Iron are We only about the most unresponsive articles in the whole list.

Steel.-There is a moderate demand for first quality Tool Steel and more or less in quiry for agricultural grades, and output for latter have been pretty well provided for by contract before this. Steel goods, such as come under the head of contractors' and as come under the head of contractors' and the steel of the steel for agricultural grades, although railroad supplies, are in very heavy request, and it has been next to impossible to get

orders filled quickly for Steel Crow Bars, Sledges of leading sizes, &c. Wire .- Both Plain and Barb continue ex tremely low; the promised pool and advanced prices have become an old story, and that profitable article of Hardware, the chestnut bell, might be rung to good effect when such promises are repeated. The advances made in Traces and Wagon Chains are firmly adhered to, and there is every prospect that the manufacturers of these goods will see a more profitable season than

- 1				
1	Louisville.	Evporte		
	Leuisville.	Exports.		
1	LOUISVILLE, SEPTEMBER, 20, 1886.	The following table presents the Exports of		
1	Pig IronThe market is quiet, but	Hardware, Iron, Steel, Metals, &c., from		
١	nuices on some brands and stades on the			
1	prices on some brands and grades are not so	ing September 21, 1886:		
1	strong as last week. The best brands con-	Hamburg. Quan. Val.		
1	tinue firm, but sales have been light. On	Quan. Val. Hdw., pkgs 239 3,308		
1	inferior brands, however, there has been	Clocks, case. 1 18 Nails, cs 190 418 Mf. iron, pkgs 2 75 Mf. iron, pkgs 133 1,110		
1	some disposition to shade prices in order to	Saws, cs 2 100 Wringers, cs. 4 43		
1	effect sales. The stock of Iron at furnaces	Sew. ma., case 1 55 Cuba.		
1	continues light, with most producers sold	Cl'ck Springs, case 1 100 Mach'y, pkgs. 28 2,976 Mach'y, pkgs. 18 1,141 Sew ma., cs 149 1,936		
1	ahead for several months Furnaces, how-	Mach'y, pkgs. 28 2,976 Mr. iron, pkgs 251 1,604		
1	ever, are more disposed to sell for future	Hdw ca 10 515 Nails, cs 3 48		
1	delivery. We quote for cash in round lots	Wringers, cs., 10 98 M. dust, bbls. 10 13		
ı	as below:	Christiania. Boilers 2 4,400		
ł	Pig Iron.	Mf. iron, pkgs 6 250 Tinware, cs 7 154 Hdw., cs 15 318		
ł	Southern Coke, No. 1 Foundry \$16.50 @ \$17.50	Clocks, pkgs., 6 181		
1	" No. 2 " 15.50 @ 16.50	Hdw., cs 11 810 Cutlery, case. 1 102		
1	" No. 236 "	Tinware, case 1 28 Ag. imp. pkgs 3 248 Scales, cs 5 118 Scales, cs 11 133		
I	dry 17.00 @ 18.00	Bremen. Pumps, pkge. 1 25		
I	Hanging Rock Charcoal, No. 1	Mf. iron, pkgs 38 708 San Domingo.		
ı	Foundry	Hdw., pkgs 28 1,479 Hdw., pkgs 7 295 Valves, c 2 100 Mach'y, pkgs 89 2,085		
ı	Silver Gray, different grades 14.50 @ 15.50			
l	Silver Gray, different grades 14,50 @ 15.50 Southern Coke, No. 1 Mill, Neutral 14.50 @ 15.50 No. 2 " 13 50 @ 14.50	Glocks, cs 99 1,807 Sew. ma., cs., 4 30		
ı	" No. 1 " Cold Short 13.50 @ 14.00	Danish West Indies. terial, pkgs. 39 387		
1	" Charcoal, No. 1 Mill 16.00 @ 17.00 White and Mottled, different grades 12.00 @ 13.00	Arms case 1 oc Buckles, case. 1 85		
١	Southern Car-Wheel, standard	Pumps, pkgs. 2 118 Cutlery, cs 9 152		
ſ	brands	Mach'y, pkgs. 2 75 Havre.		
ł	Hanging Rock, Cold-Blast 23.00 @ 25.00	Hdw. cs 8 55 Ag imp pkge 1 85		
l	" Warm-Blast 19.00 @ 21.00	Pumps, pkgs. 6 40 Pumps, pkgs. 4 300		
l	Old Material. —There has been no change	Per. caps. cse 1 20 Clocks, cs 7 200		
1	in the demand. Rails continue scarce, but	Antwerp. Copper, casks 360 45,000		
l	buyers are not willing to pay the advance	I. drums 20 230 Sew. ma. cs. 385 4,319 Hdw., cs 25 414 Mach'y, pkgs. 10 201 Hdw. cs. 4 194		
1	asked by those who command rails in any	Guns, cs 8 570 Hdw., cs 4 194		
ŀ	quantity. We quote for cash as below:	Mach'y, pkg. 1 500 French West Indies.		
ŀ	Rails, # ton \$20.00 @ \$21.00	Liverpool. Tinware, cs 3 39 Mach'y, pkgs. 228 17,127 Mf. iron, pkgs. 8 24		
ı	Wheels. \$2 ton			
ı.	No. 1 Wrought, \$\mathbb{H} 100	Pumps. pkgs. 14 624 Hdw cs 12 608		
1	No. 1 Country Wrought, \$\pi\$ 10070 \$\overline{\pi}\$.80 No. 2 Country Wrought, \$\pi\$ 10050 \$\overline{\pi}\$.60	sacks4.898 27.556 Patermo.		
	No. 1 Cast. 39 100 45 @ 55	Stiniates can 1 450 Differ come 1 66		
ı	Boilers, uncut, \$\mathbb{B}\$ 100	Launch 1 1,100 Clocks, case 1 30 Sew. ma., cs. 139 3,143		
ı	Flues, Tanks and Sheets, \$10025 @ .35	Weld g comp		
1	Axles, 19 100,	bbl		
	-			
	W. B. BELKNAP& Co., Louisville, report	Clocks, bxs. 334 6.220 Mr. iron, pkgs 7 311 Widmills, cae. 1 75 Widmills, cae. 1 75		
	as follows, under date of September 20,	Rifles, cs 2 400 Leghorn.		
	1886: Business continues in the even tenor			
	of its way, without any excitement what-	Pottandow		
	ever. We doubt if there has ever been a	Clocks on 9 20 Fumps, page. 8 10c		
	time when the demand was so large without creating something of a speculative move	Cop., casks 54 6.750		
	ment. The causes, we take it, are the ex-	Hdw., cs 5 84 Windmills, cs 33 1,599 Ag.imp., pkgs 3 115 Hayti.		
	tremely low prices prevailing abroad, and	Wringons on 13 are		
1	the fact that our own manufacturers have	rumps, pkgs. 23 802 Nails, kegs 81 192		
	been slow to ask or promise large advances,	Lead, pigs 8 12		
8	and, unless there is a prospect of really	Clocks, pkgs 60 716 Sew. ma., cs., 5 301		
1	arge profit in the near future, the specu-	Hdw., cs 78 1,827 Scales, case 1 15		
П	ator does not take hold. Such advances as	Water-wheel. 1 200 Pump 1 141.		

Water-wheel. 200 Pump..... Ag.imp., pkgs 26 1,012 Venesuela. London. Mach'y, pkgs. 21 Lendon.

Mf. iron, pkgs 41 995
Guns, cs ... 5 1,300
Hdw., pkgs ... 87 3,355
Sew. ma., cs. 213 3,871
W. mill, pkgs. 3 81
Ag. inp.,pkg. 1 265
Cartridge, cs 403 5,246
Mach'y, pkgs. 30 7,856
Clocks, pkgs. 143 8,440
Wringers, cs. 4 109
Ox. zinc, bbls 150 1,142
Glassove,
Glassove, United States of Colombia. Colombia.

Mf.iron, pkgs. 239
Mach'y, pkgs. 126
Sew. ma., cs. 124
H iw., pkgs. 216
Cutlery, cs. . 49
Firearms, cs. . 3
Wash. mach., 2
Springs. . . 50
Y. metal, cs. 2
Soider, cs. . 3
Steel, cs. . 3
Ar. imp., pkgs 23 Glasgow.

Steel, cs...
Ag. imp.pkgs
Cartridges, cs
Tinware, cs...
Tacks, cs....
Nails, kegs...
Zinc, drums...
Lead, rolls....
lron, nkgs... Bristol Mach'y, pkgs. 8 800 lron, pkgs. 544
Clocks, pkgs. 30
Shot, cs. 2
Copper, cs. 5
Iron safe. 1
Quicksil'r, fiks 26
Saws, cs. 4 British West Indies. Cutlery, case. Clocks, cs... Washing ma-chine... Smokestack... Boiler Saws, cs Firearms, cs... Iron, pkgs.... Fountain Central America. 47 162 51 65 100 21 Mf. iron.pkgs. 4
Hdw., pkgs... 44
Clocks, cs... 10
Sew. ma., cs... 9
Ox. shoes, cs... 22
Mexico. on tanks Cartridges, cse Boiler tubes, pkgs.... Nails, kegs... Sew. ma.. cs.. Scales, cs... Yellow metal, Mexico.

Mach'y, pkgs. 8
Tacks, cs. . . . 8
Clocks, cs. . . 4
Cartridges, cs. 27
Tinware, cs. . 2
Firearms, cse 1
Hdw. pkgs. . 35
Mf. iron, pkgs 83
Mf. steel.pkgs 43
Nails, kegs. . 35
Cutlery, cs. . . 90
Sew. ma., cs. . 120
I. tubing, bdis 30
Ag. Imp.pkgs 30
Litebras, yellow metal, cs... Mf. iron. pkgs... Hdw., pkgs... Macb'y, pkgs... Pumps, pkgs... Ag.imp.,pkgs Nalls, cs... Tinware, cs... 811 899 725 1,418 158 84 145 169 Hong Kong. Ag. imp.,pkge 1 169 Pistols, case. 1 115 Clocks, cs.... 10 148 Hdw., cs.... 12 1,315 Liberia. Nails, kegs... 47 Clocks, cs.... 3 Tinware, cs... 3 Mf. iron, pkgs 20 Sew.ma., case 1 Hdw., pkgs... 18

Brasil.

Newfoundland. 871 77 100 180 Brasil.
Cotton gin. 1
Cutlery, case. 1
Iron, cs. 70
Sawa, cs. 2
Mf. iron, pkgs 38
Tacks, bxs. 3
Ag.imp, pkgs 85
Hdw, cs. 105
Clocks, cs. 40
Agateware, cse 1 Hdw., pkgs... 11 Sew. ma., cs.. 10 New una.cs. 10
Mach'y, pkge. 1
Clocks, cs. 34
Mf. iron, pkgs 19
Saws, pkgs. 45
Ag. imp., pkgs 6
Cartridges, cse 1 21 46 British Guiana.

China. Hdw., cs.... 15 Iron safe. . . 1 Pumps, pkgs. 5 190 50 44 Hdw., cs..... 8 100 Mf. iron, pkgs 122 1,557 team traps, pkgs..... Argentine Republic. in Africa.
Cartridges. cs 70
Ag.imp., pkgs 150
Pumps, pkgs. 5
Clocks, case... 1 100 114 40 Mf. iron, pkgs 25

Coal Market

The Anthracite Coal market is undoubtedly stirred by the events of the week, which consist primarily of the allotment of 3,250,000 tons for October, and the reorganization of Reading, now supposed to be on the eve of consummation. The allot-ment was completed at a meeting of the managers at Frederick A. Potts' office on Tuesday, and this action was without dis ent. The amount is reduced compared with 3.552,166 tons for the same month last year. The question of more immediate interest is

templated advance in prices of 15¢ @ 25¢ P ton. As to the expediency of a sharp Domestic. advance to soon follow the recent circulars opinions differ.

The probable effect of the contemplated changes in Reading, to take effect under the management of President Corbin, is discussed by the Anthracite Coal producers with much complacency, future harmony of operations being assured, in their judgment. It is admitted that the Pennsylvania Rail road, with its new feeder in the Schuylkill region, may prove a source of demoralization, but of this they profess to have little fear. They contend that an immediate advance of 50¢ P ton could be realized, but that policy dictates a more moderate course. They admit that high prices for Anthracite operate as a direct premium for the Soft Coal producers, who are ready to extend their market as encouragement may offer. Already Bituminous Coal feels the advance, and is firm at \$3.25, f.o.b. The present prices for Anthracite, free on board at shipping points, are \$3.50 for Brokeu, 3.55 for Chestnut, \$3.70 for Egg and \$4 for Stove. The Pennsylvania Coal Company, however, claim to realize their circular of the 15th inst., delivering at Newburg, viz. Lump, \$3.35; Grate, \$3.35; Egg, \$3.50; Stove, \$3.90; Chestnut, \$3.60; Pea, \$2.20. Manufacturers are for the moment little affected, seven-eighths of them being covered by recent contracts.

Eastern freights are not very strong vessels in good supply.

The total amount of Anthracite mined

thus far in the year is 21,054,175 tons, compared with 20,086,329 tons for the same period last year, an increase of 967,846 tons. The official statement shows that the Anthracite Coal tonnage for August was 2,682,004, which is a decrease of 341,908, compared with August, 1885.

The miners of Soft Coal in the Clearfield district demand an increase of 10 %, to take effect on October 1.

The Mahanoy plane is once more in oper ation, hoisting an average of 1300 cars of Coal per day. The new engines are the 14 most powerful of their kind in the United

Metal Market.

Copper .- Our market during the week has almost been wild. A large business has been transacted at advancing prices. For spot and September 10.90¢ was bid and held at 11.10¢ @ 11.15¢; for October, 11¢ is bid; for November, 11.05¢ bid and offered at 11 40¢; December, 11.05¢ bid, offered at 111/2¢; January, 11.10¢ bd, offered at 11.60¢; February and March, 11.15¢ bid; April, 11.20¢, and May 11¼¢. These four months are held at 12¢, but a trifle le-s would probably buy them. Transactions would have been larger still but for the absence of sellers. Best Selected meanwhile advanced £1 in London to £44. Chili Bars ranged as follows; September 16, £40. 2/6; 17. 40. 5/; 18, £40. 17/6; 20, £41; 21, £41. 2/6; this morning, £40. 17/6.

Tin .- We have had a very active and excited market, with large dealings daily at steady rising prices, following the advance in London, which cables spot Straits this morning £101, 12/6, and three months £102. 7/6. The transactions in this market aggregate for the week between 250 and 300 tons at from 22¢ to 22.60¢ spot; 22¢ @ 22.55¢ Setember delivery; 22 10¢ @ 22.65¢ October and 22.15¢ @ 22.70¢ November delivery. For shipment from London 22,50¢@ 22.60¢ has been paid; now held at 22.70¢. Shipments from the East have been taken at 221/2¢; now 221/4¢ asked. Shipments from the Straits Settlements to London during the first part of the current month have been 300 tons; to this country 50 tons

During the first seven months they were this
way, 40,766 piculs, against 16,471 piculs
same time last year. At the close London same time last year. At the close London breaks down 5/, and we give way to 22.35¢ September. Tin Plates-Have been steady and rather firmer. We quote large lines d box : Charcoal Bright, \$4.65 @ \$5; do. Ternes, \$4.15 @ \$4.3c, and Coke Tin, \$4.25 @ \$4.35. Liverpool very firm at 15/ @ 17/6 Charcoal, and 12, 9 @ 13/6 Coke.

Lead-Has been inactive and unsettled by the plumbers' strike, and the disgust of Corroders at selling so little White Lead this season so far; furthermore by an attempt to depress the price, 150 tons selling at 41/2¢, and previously 50 tons in a small way at 4.60¢. London quotes Soft Spanish £12. 17/6, and English Pig, £13. 5/. Germany's Lead production has been as follows:

	1885. Tons.	1884. Tons.
fecherwich	28,481	26,200
tolberg		15,988
thenish-Nassau		6,177
. Pongsen & Sons	8,910	8,3.0
temy, Hoffmann & Co	4,608	5,641
. B. Goldschmeid	3,901	3,732
Valter Croneck		5,408
arnowitz Works		11,351
lothenbach	56	36
lausthal	12,099	10,809
relberg	4,072	5,469
Total	91,810	94,101

Spelter and Zinc .- Common Domestic Spelter is demoralized, selling as low as 4.30¢ @ 4.35¢. Silesian remains tolerably the ability of the railroads to transport, steady at 4 60¢ @ 4.70¢. In London it is this being already a source of embarrass quoted £13 12/6. From Breslau comes a that with two burners, each having only ment. Lack of cars is a constant complaint, report that an extraordinary demand has ment. Lack of cars is a constant complaint, report that an extraordinary demand has on account of the wide western field to set in for Austria and other places for Sheet No. 2 pig in one hour in an experimental which cars are sent, together with the de- Zinc, and that some of the mills were work- furnace costing less than \$50.

mands upon the roads for the movement of ing over-night under a pressure of orders. merchandise, and, there being no surplus It may not be long before Spelter will take stock at present, operators are confident the an upward turn again in Europe. Meanwhile whole will be readily absorbed despite a con- Bertha Refined sells at New York at 8¢, and Sheet Zinc begins to stir at 5.60¢ @ 5.70¢,

> Antimony-Has been moderately active at 91/4 Cookson and 75/4 @ 73/4 Hallett.

New York Metal Exchange.

The following sales are reported:	
FILDAY, September 17. 10 tons Tin, October. 10 tons Tin, October. 25 tons Tin, October. 25,000 B. Lake, spot.	22.10¢
SATURDAY. September 18, 10 tons Tin. October. 20 tons Tin. October. 10 tons Tin. November 25 tons Tin. prompt shipment. 10 tons Tin, October.	22,20¢ 22,25¢ 22,40¢
Monday, September 20, 10 tons Tin, October 10 tons Tin, November 25 tons Tin, prompt shipment. 15 tons Tin, October	22.10¢ 22.1 ¢ 22.5 ¢
TUESDAY, September 21. 10 tons Tin. November	22.60¢
25 tons Tin, November 10 tons Tin, September 10 tons Tin, September 10 tons Tin, November	22,50¢

Mr. Dering, writing from Coburg to the Mr. Dering, writing from coourg to the British Foreign Office, calls attention to one method which Germans are adopting to cultivate trade with China. With the view of ascertaining the class of European articles most in favor and commanding the readiest sale in the Chinese markets, the German consular authorities in Canton and elsewhere were instructed to purchase on the spot and send home specimens of European goods of every nature forming the staple commodities most in vogue, together with observations based on local knowledge as to the marks, mode of packing and other minutiæ which specially induced the Chinese purchaser to favor one class of goods more purchaser to favor one class of goods more than another. An exhibition of these goods was opened in Gotha by the Ducal Ministry, at the request of the Saxon chambers of commerce, with the express object of showing practically to German manufacturers the objects to which they should devote their attention, with the view of increasing thair export trade with China a trade their export trade with China—a trade which they consider capable of almost unlimited expansion. The special fancies of the Chinese were studied in this exhibition, inasmuch as considerable stress is laid by that peculiar people on whether goods are wrapped in blue or red paper, or fastened with a black or white cord. The Chinese purchasers, they say, regard any goods wrapped round in an unaccustomed manner, or with a hitherto unknown mark, with great suspicion, and are apt to condemn any such goods as valueless without trial. On the other hand, the Chinese are first-rate customers for all goods which they have re-peatedly proved to be good, and always of equal quality: and so great is this confidence that, when once a Chinaman recognizes on a bale of goods a familiar trade-mark and the accustomed wrappings, he never thinks of examining it or measuring it before purchase. The exhibition in question consisted of red and gray shirtings, principally cotton goods; white or pale gray for underclothing; navy blue, red or yellow for upper clothing; iron, wire, tin, watches (of which there is a large sale), and a considerable assortment of perfumery and liquors in bottle, biscuits and cakes in highly ornamented tins, and mixed pickles. The consumption of cheap German soap and looking glasses is large, as also that of umbrellas and sunshades, provided they are made in 16 par-titions. India rubber goloshes are much in vogue when made China fashion, with broad and turned up shoes.

The leading dimensions of the new Cale donian single locomotive, to which English papers have given a good deal of attention as a noteworthy example of English locomo tive practice are as follows: Cylinders, 18 inches diameter by 26 inches stroke, and boiler pressure 150 pounds per square inch; driving-wheels, 7 feet; trailing-wheels, 4 feet 6 inches, and bogie wheels, 3 feet 6 inches; total wheel base, 21 feet 1 inch. The distributed weights, when in working order are bogie, 13 5 tons, driving-wheels, 17 tons, trailing-wheels, 11.4 tons; total, 41.9 tons. The tender is six-wheeled, 4 feet diameter, and total weight when loaded 75.4 tons.

A patent, No. 345,260, dated July 6, 1886, has been granted to Mr. Gottlob Rowe, of Danville, Pa., for a nail-plate heating and tack-bluing furnace. Its principal features are a combustion chamber, through which at the same time a rotary bluing cylinder, in-clined, extends. The blast enters through clined, extends. The blast enters through flues in the roof of the furnace, while the gas passes through one of two regenerative chambers placed below the combustion chambers. The design seems to be a very simple one. Mr. Rowe is still superintendent of the Danville Nail and Manufacturing Company, from whom we learn that two furnaces have been running satisfactorily at that works. They heat the nail plates very rapidly, uniformly and at a trifling cost for fuel.

Messrs. A. C. Hindekoper, L. Mambourg, M. Houze and D. S. Dockstader, of Meadville, Pa., have invented a heating and melting gas furnace for which a patent, No. 347,875, has been granted them, under date of August 24, 1886. The furnace consists of a central chamber into which they introduce a portion of the natural or producer gas through a pipe, where it is burnt in contact with a mass of broken fire-brick. Another part of the gas is injected into the air supply pipe at the point where it enters the central combustion chamber. The air itself is heated in two side chambers and in a flue covering the roof of the central combus-tion chamber. Mr. Hindekoper writes us



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Jack Screws, Tire Benders, Track Jacks, Carriage Makers' Vises,

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ONLY PERFECT ADJUSTABLE

Sliding Door Hangers

ADJUSTABLE SAW VISES, SPOKE SHAVES, SPOKE TRIMMERS, BENCH HOOKS, HOLLOW AUGERS. EXCELSIOR CAN OPENERS,

Patent Braided Cotton CHALK LINES, &c. FOR SALE BY

LLOYD & SUPPLEE HARDWARE CO.,

PHILADELPHIA.

J. H. Sternbergh, Reading, Pa., MANUFACTURER OF REFINED BAR IRON.

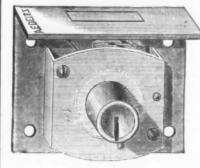
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ORE JIGS.

McLANAHAN & STONE, Others Pending.

New York.

Gaysport Foundry, Hollidaysburg, Pa.
Manufacturers of Ore Washers, Screens, Elevators, Conveyors, any general Ore Mining Machinery.

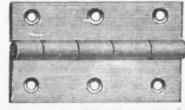


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ALWAYS GIVES THE UTMOST SATISFACTION

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BELTING. Unsurpassed for Strength, Durability and Cheapness.

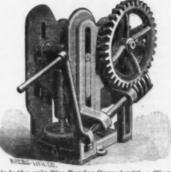
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Ne Cross Joints, Unaffected by Dump.
Clings well to the Pulley,
Has no equal. In fact,
is THE BELT. MAIN BELTING

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Strongest and Most Powerful TIRE BENDER IN THE WORLD.



Weight, 235 lbs.

THE CHAMPION BLOWER AND FORGE CO. LANCASTER, PA., U.S. A.

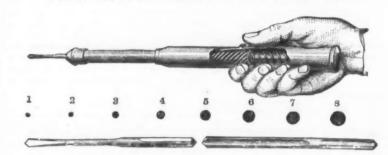
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New List and Increased Discount.



From this date the list on these Tools complete with eight drills will be \$24.00 per doz., instead of \$27.00, as heretofore. The discount to dealers will be quoted on application.

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September 15'h, 1886.



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CHARCOAL

AND PLATE IRON GENERALLY. ALSO BEST QUALITY HOMOGENEOUS STEEL PLATES.

We ask the special attention of the trade to our C. H. No. 1 Boiler Plates, which we manufacture expressly for the Shells of Steam Boilers and stamp 50,000 pounds T. S. when desired. One hundred and sixteen tests of this iron, made during he last three years by the I. S. Inspectors of Steam Vessels, show an average tensile strength of 55,808 pounds to the sectional square inch, and an average reduction of area of the fractured section of 30% per centum. Our prices are as low as the production of a good article will admit of.

POTTSVILLE IRON & STEEL CO.,

VIZ., BEAMS, CHANNELS, TEES, ANGLES, PLATES AND BARS; Also STEEL AND IRON AXLES FOR FREIGHT AND PASSENGER CARS.

This Steel is manufactured by the CLAPP-GRIFFITHS process, and is specially adapted, in addition to the above, for Boiler and Bridge Rivets, Wire Rods, Nail Plates, &c. &c. Our Mild Steel is well adapted for use in place of the best quality of Wrought Iron; where a greater strength and duttility is required, it welds readily as Iron. Also Billets, Slabs of all sizes and any desired temper. Shafting of all sizes in stock, from which prompt shipments can be made.

Brewery, Malt and Ice House Construction a Specialty.

Herrman-Parker Hardware Mfg. Co.,

MANUFACTURERS OF

GREY IRON SHELF HARDWARE

Our Specialties: Axle Pulleys, Well Wheels, Grindstone Fixtures, Hay-fork Pulleys, Wash-boiler Handles, Stove Lifters and Post Mauls.

812 S. 12th Street,

St. Louis.

PURE TURKISH EMERY. WALPOLE EMERY MILLS.



77 Chambers St.,

Why not try them?

BERKELE CO.

The ALFORD &

Selling Agents,

The attention of Hematite ore miners is called to our new Jig. The simplest and most effective separator now in use.

MECHANICAL.

Jet Propellers

In an article on hydraulic propulsion the

In an article on hydraulic propulsion the Engineer (English) thus reviews the relative positions of jet and screw propellers:

When a screw or paddle-wheel is put in motion a body of water is driven assern and the ship is driven ahead. Water, from its excessive mobility, is incapable of giving any resistance to the screw or paddle save that due to its inertia. If, for example, we conceive of the existence of a sea without any inertia, then we can readily understand any inertia, then we can readily understand that the water composing such a sea would offer no resistance to being pushed astern by paddle or screw. When a gun is fired the weapon moves in one direction—this is called its recoil—while the shot moves in another direction. The same principle operates to cause the movement of a ship. The water is driven in one direction, the ship in another. Professor Rankine has laid down the proposition that, other things being equal, that propeller must be most efficient equal, that propeller must be most efficient which sends the largest quantity of water astern at the lowest speed. This is a very important proposition, and it should be fully grasped and understood in all its bearings. The reason why of it is very simple. Returning for a moment to our gun we see that a certain amount of work is done on it in causing it to recoil, but the whole of the work done by the powder is, other things being equal, a constant quantity. The sum of the work done on the shot and on the gun in causing their motions is equal to the energy expended by the powder; consequently ergy expended by the powder; consequency the more work we do on the gun the less is available for the shot. It can be shown that, if the gun weighed no more than the shot, when the charge was ignited the gun and the shot would proceed in opposite directions at similar velocities—very much less than that which the shot would have had had the gun been held fast, and very much greater than the gun would have had if its weight were, as is usually the case, much in excess of that of the shot. In like manner part of the work of a steam engine is done in driving the ship ahead and part in pushing the water astern. An increase in the weight of water is equivalent to an augmentation in the weight of our gun and its carriage of all that, in short, takes part in the recoil.

in the recoil.

But, it will be urged, it is just the same thing to drive a large body of water astern at a slow speed as a small body at a high speed. This is the favorite fallacy of the advocates of hydraulic propulsion. The turbine or centrifugal pump put into the ship drives astern through the nozzles at each side a comparatively small body of water at a very high velocity. In some early experi-ments we believe that a velocity of 88 feet per second, or 60 miles an hour, was maintained. A screw propeller operating with an enormously larger blade area than any pump can have drives astern at very slow speed a vast weight of water at every revolution; therefore, unless it can be shown that the result is the same whether we use high speed and small quantities or low speed and large quantities, the case of the hydraulic propeller is hopeless. But this cannot be done. It is a fact, on the contrary, that the work wasted on the water increases in a very rapid ratio with its speed. The work stored up in the moving water is expressed in foot-pounds by the formula $\frac{W}{2g}$, where W stands for the weight

20 of the water and v for its velocity. But the work stored in the water must have been derived from the engine; consequently the waste of engine power augments, not in the ratio of the speed of the water, but in the ratio of the square of its speed. Thus, if a screw sends 100 tons per second of water astern at a speed of 10 feet per second, the work wasted will be 160 foot-tons per second in round numbers. If a hydraulic propeller sent 10 tons per second astern at 100 feet per second, the work done on it would be 1562 foot-tons per second, or 10 times as much. But the reaction effort or thrust on the ship would be the same in bith cases. The waste of energy would thrust on the support of the waste of energy would under such circumstances be to times as great with the hydraulic propeller as with the screw. In other words, the slip would be magnified in that proportion. Of course it will be understood that we are not taking the understood that we are not taking account resistances and defects proper not give way entirely to any improvement, however economical of timber it may be. drawbacks to the efficiency of the hydraune of rough usage, not easily got out of repair, propeller from which the screw is exempt; rough usage, not easily got out of repair, all that we are dealing with is the waste of power in the shape of work done in moving water astern, which we do not want to most perfect band machine, though it might cut a kerf no thicker than a sheet of paper. The fact that there are so many places of the with a siled with a move, but cannot help moving. If our cut a kerf no thicker than a sheet of paper, readers have followed us so far they will now understand the bearing of Rankine's this kind that can be better filled with a circular mill than with any other sort of the control ling force brought to bear on the ship

It may be urged, and with propriety, that the results obtained in practice with the jet propeller are more favorable than our rea-soning would indicate as possible; but it will be seen that we have taken no notice of conditions which seriously effect the performance of a screw. There is no doubt that it puts water in motion not astern. twists it up in a rope, so to speak. Its akin frictional resistance is very great. In a word, in comparing the hydraulic system with the normal system, we are comparing two very imperfect things together; but the fact remains, and applies up to a certain point, that the hydraulic propeller must be very inefficient, because it, of all propellers, drives the smallest quantity of water astern

at the highest velocity.

passes along the platform at a speed of, say, 5 miles an hour, one sack shall be dropped into the boat and another dropped overboard continuously. It is evident that each sack, while it remains in the boat, will propeller boat is continually taking in tons of water, imparting her own velocity to them, and then throwing them overboard. The loss of efficiency from this source may become enormous. So great, indeed, is the resistance due to this cause that it precludes the notion of anything like high speeds being attained. We do not mean to assert that a moderate degree of efficiency may not be got from hydraulic propulsion, but it can only be had by making the quantity of water sent astern as great as possible and its velocity as small as possible. That is to say, very large nozzles must be employed. Again, provision will have to be made for sending the water through the propeller in such a way that it shall have as little as possible of the motion of the ship imparted to it. But as soon as we begin to reduce these principles to practice it will be seen that we get something very like a paddle-wheel hung in the middle of the boat and working through an aperture in her hull, or else a screw propeller put into a tube travers ing her from stem to stern.

We may sum up by saying that the hy-draulic propeller is less efficient than the screw, because it does more work on the water and less on the boat, and that the boat in turn does more work on the water than does one propelled by a screw, because she has to take in thousands of tons per hour and impart to them a velocity equal to her own. Part of this work is got back again in a way sufficiently obvious, but not all. If it were ail wasted the efficiency of the hydraulic propeller would be so low that nothing would be heard about it, and we certainly should not have written this

Hydraulic Attachments to Sugar Mills.

In a paper read before the British Associ ation at its last meeting Mr. Duncan Stewart described an interesting hydraulic attachment to sugar mills. The novelty consisted of the brasses of the rolls being attached to hydraulic rams. In this way a provision was made for the rolls giving somewhat if any foreign hard substance, which would otherwise break the machine, should get introduced. By this arrangement the percentage of juice can be extracted equally from all the canes passing through the mill, whether the feeding be regular or not. It also lends itself to mechanical feeding, a system not yet successfully introduced. It will work with such regularity that the crushed canes, known as "megass," may be used as fuel at once. The saving by use of this system is calculated at \$5 per ton of sugar made. We understand that it is now at work in more than 50 sugar factories.

Band vs. Circular Saws

Band saws, says the Timberman, probably the coming machines for making lumber where great economy of raw ma-terial is the thing to be most carefully considered. The experiments made, and the practical use of these implements during the last two or three years, demonstrate this much beyond any question. But be-cause this is true it does not follow that circular saws are to become obsolete. They have made too good a record to be disposed of so summarily. There is no good reason for believing that circular saws will not be in great demand for many years to come, if they do not occupy a prominent place in the list of lumber-cutting tools as long as there is lumber to be cut. Both the band and circular represent developments of the same principle; they both accomplish their work by means of a serrated blade moving rapidly in one direction, therein differing radically from the principle of the earliest to the screw, from which hydraulic proparts to the screw, from which hydraulic sion is free; nor are we considering certain of low first cost, adapted to more or less translate from which the screw is exempt; rough usage, not easily got out of repair, it is work, and altogether a reliable to the readers have to the readers and the bearing of Rankine's this kind that the proposition, that that propeller is best which moves the greatest quantity of water astern at the slowest speed. The weight of water moved is one factor of the thrust, and conmoved is one factor of the thrust of thrust o or the band saw upon its domains. Indeed, it is possible that imprevements may still be made in circular saws that will bring it close alongside the band in point of economy. Astonishing success has been achieved already in the use of thin saws, and who will venture to fix the limit beyond which improvement in this direction shall not go.

A New Nut Lock.

Of the almost endless variety of nut locks thus far brought out there is probably none better designed to secure the desired object than the device shown in the annexed cut. It is known as the National Lock Washer, and combines all the important features of

There is, moreover, another and a very serious defect in the hydraulic propeller as slight rib at one side. This rod is coiled usually made, which is that every ton of upon a mandrel placed in a latte, and the water passed through it has the velocity of the ship herself suddenly imparted to it. That is to say, the ship has to drag water with her. To illustrate our meaning, let us suppose that a canal boat passes below a stage or platform a mile long, on which are arranged a sories of sacks of corn. Let it qurther be supposed that as the canal-boat water passed through it has the velocity of coil and mandrel together are then mounted

placed in a tumbling box, from which finally they emerge ready for the market. The action of one of these washers in securing a nut is at once apparent. As the nut each sack, while it remains in the boat, will is screwed down the rib on the washer, to have a speed the same as that of the boat, which we have already referred, causes a though it had none before. Work consections of metal in the nut, the metal being quently is done on each sack, in overcomforced against the bolt, completely filling uping its inertia by imparting a velocity of the spaces between the threads. In this 5 miles an hour to it, and all this way a remarkably tight fit is secured. At work must be done by the horse towing on the bank. In like manner the hydraulic down so as to bring its two ends opposite each other, presents to the surface b it a concave face, causing the washer to yield to any further pressure of the nut, and thus adding materially to the spring already given by the process of cooling.

The tendency of the reaction of the washer on the nut thus obviously is to constantly tighten the fit between nut and bolt.

For use upon fish plates on railways, upon



The National Lock Washer

ready given highly satisfactory results. Several washers of this type have been used experimentally on the track of the Pennsylvania Railroad during the past few months, and the experience with them has shown them to be thoroughly reliable. The New York Central and Hudson River Railroad Company, we are informed, have recently ordered 72,000 of these washers, which certainly seems to indicate that the device is meeting the favor of railroad authorities. It is made by the National Lock Washer Company, 52 Lawrence street, Newark N. J.

English Portable Engines.

Theoretical men, says the Mechanical World (England), have for years been urging our agricultural engineers to go in for a high speed, high-pressure and light portable engine, but without avail. One of the first questions generally asked by engineers who have had little or no practical experience is, "Why are portable engines made so heavy!" Our foreign competitors, we are told, are making for themselves a lighter type of portable engine. There are also me agricultural engineers who agree that the modern English portable engine is much too heavy. In the face of such testimony in favor of a lighter style of engine it does appear somewhat surprising that these en-

appear somewhat surprising that these engines are now heavier than ever they were.

Twenty five or 30 years ago an 8-horsepower nominal portable engine was worked
as a general rule, at 45-pound boiler pressure, at a speed of 100 revolutions per minute, and the engine weighed not more than
forcet. The present 8-horse portable en-60 cwt. The present 8-horse portable engine is worked at 80 to 100 pounds pressure per square inch, and at a speed of 150 revolutions per minute, and weighs over 80 cwt. The working pressure has been doubled and the speed has been materially increased, and, in opposition to the general supposition, the weight has not decreased, but increased 25 per cent., this enormous weight having gradually, year by year, crept up to the present limit. The long-established firms of world-wide renown continue to meaning the meany engines in continue to manufacture heavy engines in spite of the dictates of theorists and spite journalists; and every new maker of port-able engines, instead of leaving the beaten track and yielding to the popular demand by introducing a 50 per cent. lighter and cheaper portable engine, invariably heaps the material on to such an extent, probably to gain favor with buyers, that the new designs recently introduced have outweighed the already prodigious well-known types. Are our agricultural engineers unable to design and make a light portable engine? We think not, but as soon as they discern a genuine demand for a high-speed, high-pressure and lighter type of portable engine they are prepared to introduce one to supply the need. Until such a demand arises we may employ our time profitably in showing that it is much easier to theorize about light portable engines than it is to make them; and we may safely add that it is infinitely easier to make them than it is to sell them. the sale might be trebled ;" but we fear that he would soon change his opinion if we could prevail upon him to turn salesman for a year or two. Doubtless some of those firms who are short of work would offer a liberal commission to any one who would guarantee to effect anything like a trebled

English buyers fight shy of small engines, and as a rule take care to have plenty for their money, and at the present time will only give their order to the maker who offers the largest cylinder capacity and the greatest amount of heating surface in the b During the present depressed state of trade the buyers repeatedly stipulate the sizes of cylinders, &c., chosing the maximum proortions of the various firms who may have forwarded specifications and tendered for the work. If one customer imagines that his boiler is 1/2 inch less in diameter than his neighbor's, who possesses one of the same nominal horse-power, the salesman soon hears about it, and believes he will never hear the last of it. Our experience also teaches us that machinery purchasers do not efficiency, simplicity and low cost.

Its general character will perhaps be best understood from a brief description of the understood from a brief description of the manner in which it is manufactured. The manner in which it is manufactured. The shape of a thin steel speed and pressure are adopted for the purpose of th pose of making a material reduction in the dimensions of the motor (unless the price is more than proportionately reduced, which we are prepared to show that it cannot be), the sales. Our contemporary has assumed throughout Europe, and it is only natural that the engine buyer would not be so unbusiness-like as to hurry off in this fash-ward this great and flourishing country."

ion, but, on the contrary, to show his appreciation of the design he graciously purchases three light engines when he only requires one. We are prepared to admit that the ordinary portable engine may be reduced in weight without impairing its efficiency, but we feel certain that this reduction could not safely exceed 25 per cent. Supposing for safely exceed 25 per cent. Supposing for the moment that the weight of an 8-horse portable engine may be reduced from 80 ewt. to 60 cwt., but the price, unfortunately, could not be reduced in the same ratio.

For instance, the details of a certain en-gine, which do admirably for 80-pound poiler pressure and 150 revolutions per minute, would utterly fail were a pressure of 200 pounds per square inch and a speed of 220 revolutions per minute introduced. To make an engine suitable to the altered conditions the parts must be redesigned, must possess perfect workmanship and be provided with ample bearing surfaces; there-fore instead of the material being reduced it has to be increased; what little may be saved in the direction of reduced weight is quickly ost in the extra care expended on the workmanship, the boiler particularly incurring considerable additional expense, it having to be specially stayed and of unquestionable material and workmanship to withstand a working to working pressure of 200 pounds per square inch. By using a boiler working at this pressure, and an engine running at a speed of 440 feet of piston per minute it may be possible to reduce the weight of an 8-horse portable engine; but to reduce it anything approaching 50 per cent. is entirely out of the question. And if the weight cannot be reduced 50 per cent, we feel certain that the price would be more disappointing that the price would be more disappointing still, and the trebled sale would prove itself to be a mere dream, judging by the very limited trade that has thus far been carried on in the light portable engines which have been introduced from time to time. When the Royal Show was held at Salisbury in 1857, a portable engine was worked at a boiler pressure of nearly 300 pounds per square inch. at an expediture of pounds per square inch, at an expenditure of coal of but 11/4 pounds per indicated horse-power per hour, but we should not be surprised to learn that only one engine was made on these lines. Ten years later a high speed portable engine was exhibted, which was tested on the brake running at 220 revolutions per minute; the fly wheel was only 3 feet diameter, the cylinder being 8 inches in diameter. This was described as one of the most remarkable engines in the show ground. In 1872 we saw a light portable engine made by an enterprising firm in the South of England, which presented the appearance of having been made out of 4-inch diameter bar iron, but, as might be expected, buyers did not take a fancy to this new venture, the designer being its only ad-mirer. In the meantime a very good trade was being done in ordinary portable engines by this firm, while this engine, such as is now recommended by the press, was re-peatedly shown to customers, but still it remained in stock, its frail details having often to be covered with tallow and whiteead to prevent them from rusting away This happened 14 years ago, yet we think the results would be much the same if any one cares to try the experiment now.

Oll Circulation in a Loose Pulley.

After every arrangement in the Babbitt metal line has proved a failure, says the Boston Journal of Commerce, and the bronzed bush with a space inside for an oil chamber is found to be of no use, a cast-iron sleeve perforated with a number of ¾-inch holes and fitted loosely, that the wheel may turn on the sleeve or together revolve on the shaft, is found to run cool without giving any trouble. A smooth, even surface has any trouble. A smooth, even surface has been the cause of heating in a great many cases, and it was only after the bearings were roughed out with a coarse file that they continued to run cool, but it will be noticed that the imperfect surface is always made in the bearing, and not on the journal. It is to be supposed that the load on a shaft is to be evenly distributed over the bearing to work in the best condition and avoid the inequality of pressure that might bring an injurious strain on some portions of the bearing, and by causing a roughness to be left on the bearing surface would be con-trary to the first elements of the best work-ing conditions. But these narrow, imperfect grooves are no doubt, when oil is plenty, the means of providing an even pressure over the bearing surface of the journal and keep-ing the surfaces in contact well lubricated. It has been found that by drilling a hole in the bearing where the most intense pressure is found the oil is ground into the cavity faster than it is drawn out; in other words, the oil has better means of passing down on the receiving side of the bearing where the space is continually growing smaller till it enters the drilled hole than it has in finding its way out, creating a pressure of a number of pounds to the square inch, the tendency of which, it will be easy to see, is to assist in supporting the shaft. If three oil cups are needed to keep a pulley with a perforated sleeve well lubricated there may be and no doubt is a partial support to be derived by the overflowing of the perforations with oil, but a far greater advantage desired from the benefit that every portion where the load on the shaft is brought to bear has a reservoir of oil close by to draw from, and not to be deprived, as in a smooth and accurately-fitted box where the particles of lubrication are wiped entirely away before they reach the place where all the friction is found.

Mr. John Birkinbine, of Philadelphia, son of the late Mr. Henry P. M Birkinbine, hy draulic engineer, who made a specialty of that branch since 1856, has decided to con-tinue his father's business. The benefits of a special training in hydraulics, extended practice, and the accumulated plans, data, &c., give him unexcelled facilities for the prosecution of all work connected with the application of water for power or for pub lic or private supply.

President Sloan, just returned from Eu-rope, says: "Manufacturers and landlords are suffering from the depression of trade

Foreign Markets.

FRANCE.

FRANCE.

Paris, September 8, 1886,—Metals.—Business is reviving but slowly from the summer spell of dullness; meanwhile Metals have been dealt in to a moderate extent only; at mill sustained figures for all but Spelter, which gave way slightly. We quote toward the close, in francs, § 100 sg.: Copper.—Chili Bars, 102 @ 105; Ingots and Slabs, 107,50; Best Selected, 110, and Pure Corocoro Ore, 105. Tin.—Banca, 271.50; Billiton, 270; Straits, 255; Australiau, 287.50, and English, 255. Lead, 33 @ 33,75, and Spelter, 36,25 @ 36,75. Iron.—The French Iron markets, ours included, have been quiet during the week, but this is due to the season, the general situation being sound and promising. Subscription to the World's Exhibition of 1899 has nearly been completed, and we trust this will soon also be the case as regards the Metropolitan Railway. The price of Merchant Iron in this city has been raised to 15 francs; § 100 kg. Old Rails are firm at 7 francs, with an upward tendency. Northern rolling-mill owners have now fixed the price of Merchant No. 1 at 13,50 francs, an advance of 57e. There is a good export demand for Hardware at the Ardennes. The Haute-Marne district is quiet; it is to be hoped there may be no split in the syndicate. In Central France, at St. Etlenne there is a steady run of small orders, keeping the majority of makers busy. Coal.—The Paris market remains as quiet as before. The supply of Gas Coal is now being laid in. Prices have not improved.—Moniteur des Intérêts Matériets

BELGIUM.

Brussels, September 8, 1836.—Iron.—The Belgian Iron market has for the moment relapsed into quietude; the amount of orders received during the week has been restricted. The bulk was for Structural Iron. Meanwhie the syndicate of rolling-mill owners goes on displaying great activity in trying to obtain some large foreign contracts; there is little prospect, however, of much turning up in that direction before the season comes to a close. One thing has at all events been gained: the dull summer season has been successfully bridged over, and during these fall months all works have had their full share of whatever orders dropped in, while prices have been sustained throughout. If not much money has been made, at least none has been lost. Meanwhile stocks have been prevented from accumulating, and the situation remains an essentially sound one, with a fair prospect for the future. Following is the foreign Iron and Steel movement in Belgium during the past seven months: Baussers, September 8, 1886. - Iron. - The Belgian

ne past seven months;		
Importations.		
	1886.	1885.
	Tons.	Tons
ron Ore	782,050	790,860
Steel Ingots	21,312	8,158
Steel Rails	11,580	22,892
Other Rolled Steel	101,010	20×,409
Vrought Steel	11,700	21.383
Pig Iron	4,433,184	
Pig Iron		5,839,029
Old Iron	701,491	1,2-9,139
ron Wire	171,436	289,820
ron Rails	1,726	11,757
sneet Iron	38,402	51,678
Other Rolled Iron	258,640	806,155
Vails	23,943	23,596
Wrought Iron	168,269	176,161
lastings	89,693	81,829
		-

Castings	89,693	81,829
Total	6,764,416	8,569,861
Exportations.	1886.	1F85.
Iron Ore	Tons. 59,641	Tons. 98,927
Steel Ingots	18,194	27,314
Wrought Steel	11,163	2,259 995
Pig Iron. Old Iron.	20,043	6,58s 2,38s
Iron Wire	1,355 8,519	1,117 4,522
Sheet Iron Other Rolled Iron.	22,683 129,600	18 748 122,120
Nails. Wrought Iron. Castings.	3,893 17,189 18,658	14,151 13,842 8,977
Total	828,298	822,607

Coal.—Now that Belgium has succeeded in exporting Coal to Cardiff it is trying to start a big trade therein between Antwerp and Genoa and between Antwerp and Egypt. Between 16 and 20 vessels are leaving Antwerp every month for India, and freights are low.—Moniteur Industriet.

GERMANY

GERNANY

HAMSCRO, September S. 1886.—Iron.—In Upper Silesia there were still in full blast 27 furnaces, and their output in August was 8000 tons jointly. Prices of Pig have been steady. Forge 58 & 41 marks \$100; Foundry, 48 & 52. Foundries were moderately active. There has been quite a brisk demand for Finished Iron at 87.50 for Merchant. The demand for Sheets was such as to exhaust all stocks, and great exertions have to be: ade to fill orders booked. In Khenish Westphalia Spanish Iron Ore is rising on higher ocean freights. Fig Iron was steader: German production decreased 27.000 tons in July as compared with July, 1885. Against June, July production increased slightly. Forge Pig was in better request. Much will depend on the price of Coke after October I. Foundry Pig, Bessener and Thomas are weak still. Ten to 12 8 Speigel has been selling at 45 & 46.50; a higher percentage of Manganese is worth 50 & 52; Siegen Forge Pig, 37 & 35; German Bessemer, 42 & 43. The rolling mills complain more of the low prices ruling than of lack of orders. There is, in fact, more animation generally. Metals.—In Upper Silesia quite a demand has set in this week both for domestic requirements and export for Sheet Zine, so that some of the rolling mills have to work over-night. The export demand is for Austria and Transutlantic countries. Common Spelter was selling at Breslau at 25.70 marks \$100 kg.; Lead at 23.50; Sheet Zine at 33, and Sheet Lead at a 25.50. Each production during the first six months has been 10,120 tons, against 870 in 1885. In this market Lead has been neglected and Copper very quiet. We quote German Lead, 13.50 & 14; Lake Copper, 22 & 55; Tin, 101 & 108, and Spelter, 14.50 & 16.—Borsenhalle.

HOLLAND. ROTTERDAM. September 4, 1886.—Tin.—The august statistics were as follows:

	July 81. 1896. Slabs.	Aug. 31 1886, Slabs.	Aug. 8 1885, Slatis.
Banca stock on warrants. Billiton stock here and at	84,448	20,304	35,726
Amsterdam	22,020	18,220	27,086
Total	56,468	38,524	62,812
August deliveries of Banca.	8,982	14,144	14,271
August deliveries of Bit- liton	4,550	3,800	и,530
Total	13,582	17,914	23,101
Deliveries of Banca since January 1	79,502	98 646	90,421
January L	49,972	53,774	20,177
Banca affoat	14,400	7,200	
Banca awaiting coming auctions	62,091 22,807	70,414	104,463

Some speculators realizing profits. Banca dropped to 59,50, and Billiton to 59,25, but recovered since, closing at 60,25 and 60 respectively. Billiton, December delivery, is bringing 60,50,—Koch & Vherboom.

Manrin, September 4, 1886.—Metals — Following are the official returns of Spanish exportation during the first six months:

	Tons.	Tons	Tons.	
Calamine. Pyrites Iron Ore. Ingot Copper. Pig Lead Quicksilver	19,463 845,835 8,248,811 7,580 61,177 1,168	18.90 0 416,874 1,908,849 13,613 61,817 585	18,217 356,3×6 2,1×3,×31 13,396 51,7×0 512	
Total	2,658,274	2,490,468	1,629,122	
		Dundak	a Milana	

Current Hardware Prices, September 22, 1886.

HARDWARE.	Conmoi Western Western
Ammunition.	Kentuck Kentuck Kentuck Dodge, G
A mmunition. 7aps. Fercussion, ** 1000- 11cks & Goldmark's 15. L. Waterproof, 1-10's	Dodge, 6 Nos. 0 \$12,0 fexas Star
Double Waterproof, 1-10's	54¢ arm Bello 28¢ teel Allo
8. H. Union Metailic Cartridge Co. F. C. Trimmed	dolders' and Relic Beltins
Cen. Fire Ground	25 % Standard **Extra N. Y. B.& J. **Y. B. & P. C. **Township of the control of the con
S. B. Genuine Imported Eley's E. R. Eley's D Waterproof, Central Fire	1.60 Bench 8
artridges— dis 608 Rim Fire Cartridges— dis 608 Rim Fire Military Cartridges— dis 158 Cen. Fire Cartridges, Pisto) and Rifle— dis 408 Cen. Fire Cartridges, Military & Sporting, dis 308 Blank Cartridges, except 22 and 35 cal., an attional 10 5 over above discounts. ### 1.50, dis	Weston's, segil's
Cen Fire Cartridges, Military & Sporting dis Sea Blank Cartridges, except 22 and 35 cal., an ac tional 10 % over above discounts.	Bits -A Augers Bit rio
tional 10 s over above discounts. Blank Cartridges. 22 cal. \$1.50, dis Blank Cartridges, 32 cal. \$3, dis Primed Shelis and Bullets dis 258 B. B. Caps, Round Ball. \$1,60, dis B. B. Caps, Conical Ball, Swaged \$1.75, dis	2 % axtension
B. B. Caps, Conical Ball, Swaged	Angular Blind A Domestic Excelsior. Washburn
All other Primers, all sizes	
Sheils— Paper Shot Shells, 1st & 2d or S. G. qual.dis 28&5& Selbold's Combination Shot Shellsdis 22&10& Paper Shot Shells, Club. Rival, Climaxdis 40&5& Paper Shot Shells, Star Brand	o a I Washburn'
Brass Shot Shells, Club, Rival & Climaxdis 65& # ads- U. M. C. & W. R. A.—B. E., 11 up\$2,00 1	Merriman s Salishury & Security Gr Blind S Sarbed, % 1 Sarbed, % 1
# ade- U. M. C. & W. R. A.—B. E., 11 up \$2.00 U. M. C. & W. R. A.—B. E., 9&10 2.30 U. M. C. & W. R. A.—B. E., 7&8 2.60 U. M. C. & W. R. A.—B. E., 7&8 2.60 U. M. C. & W. R. A.—P. E., 11 up. 3.10 U. M. C. & W. R. A.—P. E., 8&10 4.00 U. M. C. & W. R. A.—P. E., 8&10 4.00 Eley's B. E., 11 up \$20 \$2.00 Eley's P. K., 11 & 20 \$2.00 dis \$20 & 20 & 40 & 50 & 50 & 50 & 50 & 50 & 50 & 5	Sarbed, % 1 Blocks. Tackie Bloc Reea Mrg. 0 Belts
U. M. C. & W. R. A.—P. E., 7&5 490 Bley's B. E., 11 up	80 Door and Si
Anvisa — agic Anvils \$ \$ 10s, dis \$0 @ 20&: Wright's \$\\$\sigma_{\text{eq}}\\$ Mouse Hole. Armitage's Mouse Hole, Extra 11: Frenton \$\\$\\$\sigma_{\text{eq}}\\$\sigma_{\text{eq}}\\$\ Wikinson's \$\\$\\$\\$\sigma_{\text{eq}}\\$\sigma_{\text{eq}}\\$\ J. & Riley Carr Patent Soild 11\\$\sigma_{\text{eq}}\\$\sigma_{\text{eq}	Cast fron Cast fron Cast fron Cast fron Tyes' Pate
Frenton 99 Vilginson's 99 La Riley Carr Patent Solid 112119	Wrought S Wr't Shut Wr't Shut
Apple Parers.—Advance. # doz \$4. Champion. # doz \$8.	50 Carriage— 00 Com. list 00 Genuine E
Gem. # doz \$5 Gold Medal # doz \$4. Ideal # doz \$5.	Phila, pate 8. H. & W. 90 Tire—
Improved Bay State. Improved Bay State, with Push Off # dox \$33. F dox \$5. dox \$4.	Common. P. C. B. & N. P. C. B. & N. P. C. B. & N.
Model P dos \$4. Monarch, Peach and Apple P dos \$13. New ightning P dos \$6.	P. C.B. & N. Co., Am. S. Co., Am. S. Co., Am. S. Co., Am. S. Co., L. B. & W., R. & E. Mf.
Chenny Anvil and Vise. \$3, dis 40&21 Alien Combined Anvil and Vise. \$3, dis 40&21 Apple Parers.—Advance. \$\psi\$ dos \$4. Champlon	50 H. H. & W. 50 R. & E. Mf. 50 Stove and P
8tandard # doz \$1. Turntable # doz \$5 Waverly # doz \$6	50 Stove 50 Plow 50 Am. S. Co. R. B. & W. 85 R. B. & W.
72	R. B. & W. Machine Bolt Ends
Asgers and Bits. Douglass Mig. Co. New Haven Cooper Co. Wm. A. Ives & Co. Humphreyaville Mig. Co. French, Swift & Co. Connecticut Valley Mig. Co. dis 60@60&26	Berny Bering h Without
Wm. A. Ives & Co	Douglas Sneil's, Rice' Jennings. Other Machi Phillipe'Pat. Bew Pin Humason. Be
Cook's, Douglass Mfg. Co	Humason. Be
Cook* New Saven Copper Co	Humason. Be Sargent & Co Peck Stow & Braces.
C. E. Jennings & Co., Auger Sis, In Sc., 23	Braces. Backus, Nos. Backus, Nos. Backus, Nos. Barber's, Nos. Barber's, Nos. Barber's, Nos. Barber's, Nos. Barker's, Nos. Barker's, Pla. Osgood's Rat
I mitation Jennings Bits new list)dis 50&10&56400 Jar Bits, Snell Mig. Co	Barber's, Nos Barber's, Nos Barker's Nos
Snell Mfg. Co.'s Jennings' Bits (new list)dis 50gto Forstner Pat. Auger Bitsdis 10 Hollow Augers—	Barker's, Pla Osgood's Rat Spofford's
French. Swift & Co	Ives' Novelty
Douglass Separative Bits Large, \$26. dis 36 de 35 de 5	Common Ball Bartholomew Bartholomew Amidon's Bar
Bonney's Adjustable # dos. \$48	Amidon's Rai Amidon's Cor Amidon's Un Amidon's ^Q uf P. S. & W
Iniversal Expansive, can salve March Mar	P. S. & W Brackets. Shelf, plain, S
Diamond. \$\Psi \text{dos. \$1.10, \text{dis 20s.} \$1.0 \\ Bee \text{'} \text{dis 20s.} \\ Double Cut, \text{Shepardson's} \text{.} \\ Double Cut, \text{Cut, Valley Mfg. Co.} \text{.} \\ Double Cut, \text{Harwell's, \$\Psi \text{gro, \$0.50}\$.} \text{.} \\ Double Cut, \text{Double Cut, Harwell's, \$\Psi \text{gro, \$0.50}\$.} \text{.} \\ Double Cut. \text{.} \text{Double Cut. Vest'} \text{.} \\ \text{dis \$0 \text{\text{Rises}} \text{.} \text{.} \\ \text{Mis \$0 \text{\text{Cost} \text{.} \text{Vest}} \text{.} \\ \text{Mis \$0 \text{\text{Rises}} \text{.} \text{.} \\ \text{Mis \$0 \text{.} \text{.} \text{.} \text{.} \\ \text{Mis \$0 \text{.} \text{.} \text{.} \\ \text{Mis \$0 \text{.} \text{.} \text{.} \\ \text{Mis \$0 \text{.} \text{.} \text	Shelf, plain, 8 Shelf, plain, 8 Shelf, ancy, Reading, plai Reading, Rose Bright W
Double Cut, Hartwell's, # gro, \$0.50	Henis' Self-Ba
Bit Stock 'trills	Buckets Buil Kins Sargent's Hotchkiss' lov Humason, Bec Peck, Stow & Elirich Edw.
Syracuse, for metal	Peck. Stow & Elirich Hdw. Butta.
L'Hommedieu'sdis 15 @ 20 % Watrous'sdis 15 @ 30 %	Cast Brass. 7
Snell's Sbip Auger Pattern Car Bits	Cast Brass. I
atent Sewing, Short\$1.00 \(\) dos—dis 40&10 \(\) atent Sewing, Long	Fast Joint, Past Joint, Loose Loos
Awis, Brad Sets. &c. wis, Sewing, Common	Loose Joint. Parliament Mayer's Him
wis, Patent Peg w gross 53 dis 305 total 5 wis, Shouldered Brad \$2.70 \times gross dis 35 \times wis, Shouldered Brad \$7.50 \times gross dis 45 \times wis, Handled Brad \$7.50 \times gross dis 35 \times 10 \tim	Mayer's Him Loose Pin, A Loose Pin, A Loose Pin, A Wrought Iron
wis. socket Scratch	Loose Pin. A Wrought Iron Past Joint N Fast Joint, E Loose Joint
ray's Adj. Tool Edis., Nos. 1, \$12; 2, \$18.dis 25 % liler's Falls Adj. Tool Edis., Nos. 1, \$12; 2, \$18.dis 25 % lenry's Combination Haft	Loose Joint. Table Butts. Inside Blind. Inside Blind
rad Sets, Staniey's Excelsior, No. 1, \$7.50. rad Sets, Staniey's Excelsior, No. 2, \$4.00. rad Sets, Staniey's Excelsior, No. 3, \$5.50.	Inside Blind Loose Pin, W Loose Pin, L Bronzed Wro Blind Butts—
Rickers' Brands— First quality	Parker Palmer Beymour Lull & Porte
Axie Grense. Keg w b. 4#; Pall, w b. 5# net	Nicholson Huffer Clark's, Nos.
txon's Everlasting. in bxs., \$\psi\$ dos., 1 \$; \$1.20; 2 \$, \$2 txon's Everlasting	Huffer
pecial brands. Axie Gresse. Keg W B, 44: Pall, W B, 54 Bet. Fascra, in bulk. Keg W B, 44: Pall, W B, 54 Bet. Fascra, in bulk. Fascra	Shepard's Ni
ational Wrought Steel Tubutar Self-Olling: Standard Farm (1 to 5) and Special Farm (At to A5) Less than 10 sets	Shepard's Bu Shepard's Ch Shepard's "Shepard's "Clark's Impi
X Strong Exp. (6 to 9), & XX Strong Truck (10 to 16): Less than 10 sets	Ciark's Impa Sta. 8 North's Auto Wood, \$10.5
Nag fielders. Sprengle's Pat., w dos \$18	Butcher's
Over 10 sets. Dag floidera. Sprengle's Pat. w dos \$18 dis 60 s. Bailances. Spring Balances. dis 50 s. Spring Pat. w dos \$1.50 dis 50 s. Spring Balances. dis 50 s. Spring Balances. dis 60 s. Spring Balances. dis 60 s. Spring Balances. dis 60 s.	Bradley's Beatty's 1 8 \$16,50 19.00 New Haven Ed.
	New Haven Ed. Albertson Mfg. Calipers.—8 Can Opener Messenger's Co.
Silver Chime	American
nor- 2ong. Abbe's. dis 25x10 a 35 s 2ong. Yankee. dis 40x10 s 20ng. Barton's. dis 40x10 s 20ng. Barton's. dis 40x10 s 20ng. Barton's. dis 50x10 s 20x10 s	Duplex
Crank Cone's	Eureka Sardine Scissors Star Sprague, No. 1. World & Best, No. 3, \$36.00.
ever, Taylor's dronged of Flated. Bet Lever, Taylor's Japanned. dis 254:10 & 2 ever. R. E. F Co.'s. 4is 504:10 & 511, Brook's dis 504:1042 \$	World s Best. No. 3, \$36.00 Universal Domestic

Am. S. Co., Norway, Phy., Inst. Oct. 16, 84 dis 805 s. Am. S. Co., Philadel, list, Oct. 16, 84 dis 805 s. Am. S. Co., Philadel, list, Oct. 16, 84 dis 805 s. Am. S. Co., Philadel, list, Oct. 16, 84 dis 805 s. R. & E. Mfg. Co dis 60 s. R. & E. W. Plow . dis 60 s. R. & E. W. Plow . dis 60 s. R. & E. & W. Plow . dis 60 s. R. & E. & W. Plow . dis 60 s. R. & E. & W. Plow . dis 60 s. R. & E. & W. Plow . dis 70 s. R. & E. & W. Plow . dis 70 s. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E. & W. Plow . dis 70 s. S. R. & E.	irrent Hardwa	r
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Section Sect	dolders'	65 %
Street, Per Con No. 2, 80, 102 St. 2010 St. 201		
Bits - Augur, Olimier, Bit Stock, Drills, &c. Sec	### Staps. Hotchkiss	
Sample S	Bits -Auger, Gimlet, Bit Stock, Drills, &c. Augers and Bits.	800
Van Sallon's Science All 10 Section Color	Dagonai. \$\psi\$ dos \$24.00—dis 6 Blind Adjusters. \$\psi\$ dos \$24.00—dis 408 Blind Adjusters. \$\psi\$ per dos \$3.00—dis 33 comestic. \$\psi\$ per dos \$3.00—dis 508:108	0 % S
Sarbed. \$1 in. \$\text{Piles.ce.}\$ \$Pile	Washburn's Self-Locking dis 20 @ 202.1 Bilind Fasteuers. #ackrell's	0%
Techer Riccus, &c., 18t. Ap. 17.785. dis 60 = 5 Recu Mirz, Co. Self-Lubricating. dis 50 = 5 Recu Mirz, Co. Self-Lubricating. dis 50 = 5 Recu Mirz, Co. Self-Lubricating. dis 70 et 7025 5 Cast from Shutter Bolts. dis 70 et 7025 5 Cast from Shutter Bolts. dis 70 et 7025 5 Cast from Shutter Sargereit's list. dis 6021 0 Wrought Barrel. dis 70 et 7025 5 Wrought Barrel. dis 70 et 7025 5 Wrought Shutter, Sargent's list. dis 6021 0 Com. list June 10, 78, dis 7322 2 Falla, pattern, list Oct. 7, 63, dis 7324 22 Com. list June 10, 78, di	Merriman s. new list, is alishury & Austin No. 2008. \$9 \(\pi \) gro. i Selishury & Austin No. 2008. \$9 \(\pi \) gro. i Security Gravity. \$9 \(\pi \) gro. i Bilind Staples. \$9 \(\pi \) gro. i Sarbed, \(\pi \) in and larger. \$\(\pi \) 8 8 8/6*	iet iet iet
Cast Iron Barrel, Square, &c. dis 70 & 70&5 Cast Iron Bunter/Boits Min 10 & 70&5 Cast Iron Sunter/Boits Min 10	Tackie Blocks. &c. list Ap. 17,'85dis 60 @ - Reca Mfg. Co. Self-Lubricatingdis 50 Bolts	
WYOUGHS SUMF Flush, Sareent's list dis 505-104 wyought sum Flush, Staley's list dis 505-104 of WYOUGHS SUMF Flush, Com'm Staley's list dis 505-104 of Com'm Staley's list dis 705-104 of Tool of T		*
Common. ist Feb. 28, 1883, Common. ist Feb. 28, 1883, dis 65.210	Wrought Sunk Flush. Sargent's listdis 55&10 Wrought Sunk Flush. Stanley's listdis 40&10&0 Wrought B.K.Flush. Com'n Stanley's list.dis 55&10	*
## Priow	Genuine Eagle, list Oct., '84	***
## Priow	P. C. B. & N. Co., Empire, 1818 Feb. 3, 1883 dis 552.10 P. C. B. & N. Co., Keystone, Phil. list, Oct. 784 dis 80 Am. 8, Co., Norway, Phil. list, Oct. 784 dis 80 Am. 8, Co., Norway, Phil. list Oct. 16, 784 dis 825 Am. 8, Co., Philadel. list, Oct. 16, 784 dis 825 Am. 8, Co., Philadel. list, Oct. 16, 784 dis 825 Am. 8, Co., Philadel. list, Oct. 16, 784 dis 825 Am. 8, Co., Philadel. list, Oct. 16, 784 dis 826 Am. 8, Co., Bay State, list Feb. 28, 83 dis 65810 R. & E. Mig. Co dis 60420 Am.	*******
### Without Augers. ### ### ### ### ### ### ### ### ###	8tovedis 70	81
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Backus, Nos. 6, 8, 12, 14	Humason. Beckley & Co.'s, Nos 1 and 2— dis 70&10 @ 60&10 & 6 Humason. Beckley & Co.'s other Nos. dis 70 @ 70&10 Bargent & Co.'s	N S
Ives' Novelty Improved	BREEUS, NOS. 110 to 114 and 31 to 33, dis 60&5@60&10. BREEUS, NOS. 6, 8, 12, 14 BREEUS, NOS. 6, 18, 20, 29, 7, 9, 11 BREEUS, NOS. 10, 18, 20, 29, 7, 9, 11 BRIDE'S, NOS. 10 to 16. BRIDE'S, NOS. 30 to 35. dis 50. dis 50. dis 50.	BBAT
Ives' Novelty Improved	Barber's, Nos. 40 to 63 dis 50&10 Barker's, Nos. 8, 10 and 12 dis 75&10@80 Barker's, Plated, Nos. 8, 10 and 18 dis 65&10@70 Osgood's Ratchet dis 40&10@50 Spofford's dis 40&10@60	O Be
Shelf Ancy Sargent's list dis 60&10 @ 60&10&10 Sheading, plain. dis 60&10 @ 60&10&10 Sheading, plain. dis 60&10 @ 60&10&10 Sheading, Rosette. dis 60&10 @ 60&10&10 Sheading, Rosette. dis 60&10 @ 60&10&10 Sheading, Rosette. dis 60&10 @ 60&10&10 Shright Wire Goods - Regular list dis 75&10 Shright Wire Goods - Regular list dis 60 Shright Wire List dis 60 Shright dis 60 Shright Wire List	Tees Novelty	Be Be Co J.
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Henis' Self-Basting Per dos 18.50 0.50 0.50 Buckets - See Well tuckets and Palls 18.55 0.50 0.50 Bull Hings - Union Co. Nut	Amidon's "diraio bai"	Sa Bi
### Butta Bruss Cast Brass Crost Brass Crottin's F John Cast Brass Corotin's F Cast Brass C	Reading, Rosette	Br
### Butta Bruss Cast Brass Crost Brass Crottin's F John Cast Brass Corotin's F Cast Brass C	Buckets.—See Well Buckets and Palls. Buil Kings.—Union Uo. Nut. dis 55 S Sargent's. dis 608-&10 S Hotchkies' low list. dis 30 S Humason, Beckley & Co. s dis 708-810 S Born. Stow & W. Co. s dis 508-10 S	Ca lro
Fast Joint, Narrow dis 60&b @ 60&10&b \$ Krast Joint, Proced Grand	Butta.	811
Loose Joint, Japanned Loose Joint, Acorns, Japanned Loose Jin, Acorns, Japanned Jasa Joint, Broad dis 65822 Fast Joint, Broad dis 65822 Coffee Joint Broad dis 65822 Coffee Joint, Broad dis 65822 Coffee Jinside Blind, Light dis 65823 Loose Jin, Wrt dis 66823 Loose Jin, Wrt dis 66824 Loose Jin, Wrt d	Fast Joint, Narrowdis 60&5 @ 60&10&5 &	1
Fast Joint, Lt. Narrow	Loose Joint, Japanned	Bri To Gri
Parker	Loose Pin, Acorns, Japanned. Loose Pin, Acorns, Japanned. Loose Pin, Acorns, Jap, Pitd, Tips ### Wrought From #### Joint Narrow	Wa Ge Sta Vic Ch
Parker	Fast Joint Broad dis 6382 g Loose Joint Broad dis 65826 g Loose Joint Broad dis 6582 g Table Butts, Back Flaps, &c dis 6382 g Inside Bitind, Regular dis 6382 g Inside Bilad, Light dis 6382 g Loose Pin, Wrt dis 6382 g Loose Pin, Light dis 6382 g Broused Wrought Butts dis 6382 g	Ph Cor Ru Hei Shi Ell Wi
Clark's, Nos. 1. 3. 5. 11, 13 dis 80&5 & 80&10 \$ Sargent's, Nos. 1. 3. 5. 11, 13 dis 75&10 & 5 Sargent's, Nos. 1. 3. 5. 11, 13 dis 75&10 & 5 Sargent's, Nos. 1. 3. 5. 11, 13 dis 75&10 & 5 Sargent's, Nos. 1. 3. 5. 11, 13 dis 75&10 & 5 Sargent's, Nos. 1. 3. 5. 11, 13 dis 75&10 & 5 Shepard's "Notscless," Nos. 50, 50, 55. 45 and 50 dis 75&10 & 5 Shepard's "Notscless," Nos. 1. 3 and 5. dis 80 & 5 Shepard's Burfalo Gravity, Nos. 1. 3 and 5. dis 80 & 5 Shepard's "Cawrity, Nos. 1. 3 and 5. dis 80 & 5 Shepard's "O. S." and "acme" "Luli & Forter Shepard's "O. S. 5 Shepard's "Queen City "Reversible dis 75&10 & 5 Shepard's "Queen City "Reversible dis 75&10 & 5 Shepard's "Queen City "Reversible dis 75&10 & 6 Shepard's "Queen City "Reversible dis 75&10 & 6 Shepard's "O. S." and "acme" "Luli & Forter Shepard's "Campande "Campan		P., Nei Mei Wa
Shepard's Niasara Gravity, Nos 1, 3 and 5, dis 80, 5 shepard's Buffalo Gravity, Nos 1, 3 and 5, dis 80, 5 shepard's Buffalo Gravity, No. 7b. dis 80, 210 shepard's "O. S." and "Acme" Luli & Forter Shepard's "O. S." and "Acme" Luli & Forter Shepard's "Queen City" Reversible. dis 75&106 5 Shepard's "Queen City" Reversible. dis 75&106 7 Shepard's "Queen City" Reversib	Clark's. Nos. 1, 3, 5,	Ad We Bla Bla
Clark's Improved Shutter Hinge, Nos. 0, 1, 14, 2, 24, 3, dis 70 de 70 de 5 de 5 de 70 de 7	Shepard's Niagara Gravity, Nos. 1, 3 and 5, dis 80 g Shepard's Buffalo Gravity, Nos. 1, 3 & 5, dis 80,23 g Snepard's Champion Gravity, No. 75, dis 80,210 g Shepard's "O. S." and "Acme" Lull & Porter	Bre Bre Bre Rat Rat
**************************************	Shepard's "Queen City" Reversible dis 758-10 £ Ciark's Improved Shutter Hinge, Nos. 0, 1, 14, 2, 24, 3 dis 70 @ 7025 5 North's Automatic Blind Fixtures. No. 2, for Wood, \$10.50; No. 3, for Brica, \$13.50 dis 2522 £	Rat Rat Wh
alipera.—See Compasses.	Butcher's Uleavers	Their Me St
	alipers.—See Compasses.	D
urcka. # dos \$2.50, dis 10 g Kta	cessenger's Comet. # dos \$3.00, dis 25 5 mpiex # dos 55e, dis 15 a 25 5 pman # # dos 55e, dis 15 a 25 5 pman # # dos \$3.75, dis 25 5 0 4 French. # dos \$8.30, dis 50 a 25	E NAE
ar \$\psi \text{ (a. \frac{1}{2} \) \$\psi \text{ (b. \frac{1} \) \$\psi \text{ (b. \frac{1}{2} \) \$\psi \text{ (b. \frac{1}{2	Treks. 7 to second dis 40 g 50 % ordine Scissors 9 dos 87.00, dis 10 % ordine Scissors 9 dos 87.00, dis 10 % ordine Scissors 10 10 % ordine Scissor	Kin, Acm Dup Rap Triu Adv

	e filles, se	h
9 %	Cards. Horse and Curry	10 €
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**	Socket # dos \$ Bullard's dis 25 @ 25& Carpet Sweepers. *Bissell No. 5 # dos \$1	1.75 10 \$
	Hissell No. 7 New Drop Pan	9,00 6 00 7.00 \$20
*	Magic \$\pi\$ dos \$1 \$\frac{1}{2} \pi \pi\$ dos \$1 \$\pi\$ dos	5.00 7.00 7.00 5.00
h.	Garland	8,00 8,00 0.00
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400	Casters. Bed	y 8,
XXXX	Deep Socket Gasters, list May, 1884 dis 25&10@25&10 Yale Casters, list May, 1884 dis 25&10@25&10 Ya'e, Gem dis 60@60&	10%
NAM	Paveon's Anti friction discount discoun	50 % 55 % &10
***	Casters. Casters. Ded. Casters. Ded. New list July Plate. 1886 dis 500 leep Socket. Seep Sock	0 %
ttt	Trace, 61-10-2. Eng. sizes ** pair 79# dis 50&10 Trace, 61-10-2. Eng. sizes ** pair 79# dis 50&10 Trace, 61-10-2. Eng. sizes ** pair 86# 60 \$ Log. Fifth ** sretcher, and other raints 50&10 66 Nov. I 1884	
2 2	Log, Fifth, Stretcher, and other tancy Chains, lis Nov. 1 1884	0 %
	American Coil, less than cask lots, add 146 W B. German Coil, list of June. 1881	0%
	Log. Fifth, Stretcher, and other tancy Chains, its Nov. 1 1844. Nov. 1 1844. Mes Fold 1 16 16 16 16 16 16 16 16 16 16 16 16 1	5 5
	White w gro 5	DE I
	Blue # gro 9 White Crayons. # gro 12# 4 12) Chalk Lines.—See Lines. Chiefe	04
	Red. \$\psi\$ gro 7\$ Blue. \$\psi\$ gro 9\$ White Crayons. \$\psi\$ gro 12\$ \$\psi\$ 12\$ Chalk Lines. \$\psi\$ chies. Chies Lines. \$\psi\$ 25 \$\psi\$ 12\$ Chies Lines. \$\psi\$ 25 \$\psi\$ 12\$ Socket Fransing and Firmer. \$\psi\$ 60\$ Witherby and Douglas. \$\psi\$ 18 \$\psi\$ 50\$ New Haven and Middlesex. \$\psi\$ 68 \$\psi\$ 26\$ Merrili. \$\psi\$ 68 \$\psi\$ 26\$ Merrili. \$\psi\$ 50 \$\psi\$ 26\$ Lake I. J. White \$\psi\$ 50 \$\psi\$ 26\$ Tanged Firmers. \$\psi\$ 16 \$\psi\$ 60\$ Tanged Firmers. \$\psi\$ 25 \$\psi\$ 25 \$\psi\$ 36\$ Tanged Firmers. \$\psi\$ 600 to	1
	Huck Bros. dis 30 Merrill dis 60&10&10 L. & I. J. White dis 30 @ 30&5 Tanged Firmers dis 50 @ 50&5	****
-	Buck Bros. dds 00&10&10	2 3
	Beach Fatent	Anna
	Clamps. Providence Tool Co.'s Wrought Iron	
	Adjustable, Snow's	MANA
	Providence Tool Co.'s Wronght Iron dis 26	N N
1 100	Clips. Norway, Axle, ¼ & 5-16	5 5
7	Norway Spring Har Clips, 6-16. dia 60 & 5 & Wrought-fron Felloe Clips. # 5 5 6 teel Felloe Clips # 5 5 Cacheren dia 50	S PP
1	Clips. Norway, Axle, ¼ & 5-16	S R
8 477	Ceffee Mills. 30ard and Box	COM
CHB	Compasses, Dividers, &zc. compasses, Calipers, D'viders	MO
BBBB	lemis & Call Co.'s Wing & Inside or Outside.dis 50&5 emis & Call Co.'s Double. emis & Call Co.'s (Call's Patent Inside)dis 30 xcelsiordis 50	HECH
B	xecisior. dis 50 ; ook " Extension. dis 20 @ 20&5 ; Stevens & Co.'s Calibers and Dividers. d's 25&10 } Coopers' Teels. dis 20 ;	M N W
BLAN		Pi Sa W
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BW	andusky Tool Co. dis 30 @ 3026.5 Corkscrews. umason & Beckley Mfg. Co. dis 40 @ 4021.0 lough's Patent. dis 33½ @ 33½&5 @ 3026.5 cowe Pros. & Hulbert. dis 35 g dis 35 g Corn Knives and Cutters. radiey's. dis 10 g asworth's. dis 25 g Cradley's. dis 25 g Cradley. dis 25 g Cradley.	Pr To De
G	Cradles	Ir
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	Doer Springs.	
W G 8t V	arner's No. 1. # dos. \$2.50 : No.2,\$8.30.dis 40&10@50 \$ em 'Coll', list April 19, 1886	AFF
Ci Pi Co Ri	arner's No. 1. # dos. EE.50: No. 2, E5.30. (dis 40E.110250 et al. 10 fem Coll), list April 19, 1886. dis 10 fem Coll), list April 19, 1886. dis 10 fem Coll), list April 19, 1886. dis 60 et 00E.10 fem Coll 10. dis 60 et 00E.10 fem Coll 10. dis 60 et 00E.10 fem Coll 10E.10 fem Coll 10E.1	On A
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Lines.	Bailey's (Stanley R. & L. Co.)	Peace Cross Cuts Thin Back. # foot 28¢ Peace Band Saws, all widths. dis 20&10 \$	Payne Pettebone & Son, list January 2, 1882.	Traps.
Octon and Didea Fish, Draper's	Sailey's Stanley R. & L. Co.	Richardson's Mill. dis 45@45&10 & Richardson's Mill. dis 45@45&10 & Richardson's Mill. dis 45@45&10 & Richardson's X'uxts. No. 1, 30¢: No. 2, 27¢: No. 3, 25¢ Boynton's Lightning Fanet, Butcher, &c. dis 25&10 & Boynton's Lightning X. Curs. Ft. 32¢@33¢ Boynton's Lightning One Man X. Cuts. Ft. 38¢@30¢ Boynton's Lightning Buck Saws Ø doz \$6,00, dis 10 % Idack Sauss	Shot. Drop, ♥ bag, 25 ₺ (2¢ off for eash in 5 days \$1.60 Drop, ♥ bag, 5 ₺	Newhou Onedda I Game, B Mouse and Mouse, V
nasons there, 80.3%, \$1.00; NO.3; \$2.50; NO.4; \$45 Masons' Colored Cotton	Plane Irons	Orimn's Hack Saws, complete dis 40&10 @ 50& Orimn's Hack Saw, Blades only dis 40&10 @ 50& Orimn's Hack Saw and Blades dis 20& Orimnond, Hack Saws and Blades dis 20& Saw Frames \$\pi\$ gro\$10 @ \$10.50 Red, Folished and Varnished \$\pi\$ dos \$1.00, dis 20 & Sed, Folished and Varnished \$\pi\$ dos \$1.00, dis 20 & Sed, Folished and Varnished	Buffaio Metallic, S. S. & Co., new listdis 50&25 \$	Mouse, F Mouse, C Mouse, C Mouse, F Mouse, F Rat, "De
List. Dec. 18, 1885. List. Dec. 18, 1885. Minick & Brittan's Burglar-Proof Locks. dis 45&2 @ 45&10&2 \$ Minick & Brittan's Burglar-Proof Locks. dis 45&2 \$ Reading Hardware Co. dist Fob. 2 1885. dis 70 \$ Persins' Burglar Proofdis 60&25 \$ Pistedis 70 \$ Fisterdis 40 \$ \$ History Burglar Proofdis 40 \$ \$ History Burglar Mig. Codis 40 \$ \$ History Burglar Mig. Codis 40 \$ \$ History Burglar Proofdis 40	Double	Saw # Sets. Stillman's Genuine # dos \$5.00 and \$7.75, dis 40&5 \$ Stillman's Genuine # dos \$5.00 and \$7.75, dis 40&5 \$ Stillman's Imita. # dos \$5.35and\$6.25.dis40&5664010\$ Common Lever # dos \$5.30and\$6.25.dis40&6664010\$	Barier's Flour Sifters	Trowe Lothrop's Reed's Br Disston's
Samps Sacelastic Control Sacelastic Control	Humason & Beckley Mfg. CO	Saw Sets. Stillman's Genuine \$\pi\$ dox \$5.00 and \$7.75, dix \$40\pi_5\$ \$5\tillman's Genuine \$\pi\$ dox \$5.25\tillman's Genuine \$\pi\$ dox \$3.25\tillman's Genuine \$\pi\$ dox \$3.25\tillman's Genuine \$\pi\$ dox \$3.20\tillman's Genuine \$\pi\$ dox \$2.20\tillman's Genuine \$\pi\$ dox \$2.20\tillman's Genuine \$\pi\$ dox \$3.20\tillman's Genuine \$\pi\$ 10.5\tillman's Genuine \$\pi\$ 10.0\tillman's Genuine	Soldering Irons. Covert's Adjustable. list Jan. 1, 1886	Peace's P Clement & Rose's Bri Brade's Bri Worrall's Garden
"Shepardson" or "U. S."	P. S. & W. Tinners' Curting Mippersadd 6 s dis 10 s Carew's Pat. Wire Cutters	Afken's Genuine. \$13.00, an 50&10 \$4.8 A taken's Imitation. \$13.00, an 50&10 \$1.00 to 50&10 \$1.00 to 50&10 \$1.00 to 50&10 \$1.00 to 50.00 \$1.00 to 50.00 \$1.0	Wood	Triera Butter and Trucks Peufield H Tubes.
Cathell	Davis Iron Levelsdis 30 %	Morrill's. No. 1, \$15.00; Nos. 5 and 4, \$24.00, dis 35.4ct 0 x Boynton's No. 1, \$12.20 dos; No. 2, \$24.00, dis 33.4ct 0 x Boynton's No. 1, \$12.20 dos; No. 2, \$10	Douglass	Twine No. 9, Fla No. 12, No. 18, No. 24, No. 36,
Domonto dia 25 4	Note	Atkins' Patent. per dos sets \$6.00	Buffalo, S. S. & Co. dis50&10 \$ Silver.Plated. Meriden Brit. Co., Rogers dis 50&5 @ 50&10&5 \$ Reed & Rarton dis 50&5 @ 50&10&5 \$ C. Rogers & Bros	2-Ply Hem 3-Ply Hem 3-Ply Hem
Platicome Kussell & Erwin.	Konler's Little Glant.	Scale Beams, List of Iam 19 1819 44 2005	Rogers & Bro	Cotton Was 3, 3, 4 and Wool
Wm. Wilcox & Co. Norwich Look Co. Yale Lock Mrg. Co. 8. dis 40 v. Sagle Lock Mrg. Co. 9. dis 20 v. Sagle Co. dis 20 v. Sagle Lock Co. dis 20 v. Sagle Lock Co. dis 20 v. Sagle Lock Co. dis 20 v. Sagle Co. d	Cronk's Fost Bars dos \$00, dis 50&5 @ 50&10 \$ Potats Parers # dos \$5.00 @ 5.50 Antrim Combination # dos \$5.00 Hoosier # dos \$13.50 Frusing Hooks and Sbears jisston's Combined Pruning Hook and Saw # dos \$18.00 dis 20&10 \$		\$15; Tables, \$30	Vises. Solid B Farattel— Fisher & Stephen Parker's Wilson's
"Horse Shoe." # doz #9 dis 40 % Barnes Mfg. Co	Oliston's Pruning Hook des \$12.00, dis 20210 & E. S. Lee & Co.'s Pruning Tools dis 40 % Pruning Shears, Henry Pat dos \$5 75 @ \$4.00 net	Scrapers. Adjustable Box Scraper (8. R. & L. Co.)	Squares. dis60&10 @ 60&10&10 \$	
Beanginaviandiabo a	Heary's Fraining Shears	Screw Drivers. dis 33\/2 (a) 33\/2 (a) 33\/2 (a) 5	Fence Staples, Galvanized	Backus in Double & Prentiss Stmpson Saw Filer Bonney
Fraim's Pat. Scandinavian, new inst 100%)dis 60 % Lumber Tools. Ring Peavies, "Hiue Line" Finish	Japanned Side	Stanley R & T Co h Warning to the Control of the Co	#Stocks and Dies. Blacksmith's	Stearn's Sargent'
Cant Hooks, Main Socket Clasp Common ## doz \$14.56 Cant Hooks, Clip Clasp, "Blue Line" Fin. # doz \$14.06 Cant Hooks, Clip Clasp, Common Finish. # doz \$14.06 Hand Spikes ## doz \$1.2, 18.600 ; \$5., \$5. Fike # Hook, 19ft. 19ft. 19ft. 18.600 ; \$5., \$5.	Bay Fork, Solid Eye, \$4.00; Swivel, \$4.50 (dis 50x10 day Fork, "Anti-Friction," 5 in. Solid, \$5.70. dis 50 s Hay Fork, "F" Common and Pat. Bushed dis 20 s day Fork, "Tarbox Pat. Iron dis 20 s day Fork, Reed's Self-Lubricating dis 60 s shade Rack dis 40 s Parket Blocks See Blocks Pumps.	Knapp & Cowles' No. 1	Sione	Washe Smith's Pa
dog 6.00 7.00 9.00 12.00 16.00	russps. dis 50 @ 50&5 5 Claters, Beat Makers. dis 50 @ 50&5 5 Pitcher Spout, Cheaper Goods dis 70 @ 50&5 8 Pitcher Spout, Cheaper Goods dis 70 @ 70&10 % \$addlers' or Drive, good quality. \$\oldsymbol{\text{\$\te}\$\$}\$\text{	Stanley R. & L. Co. Strained Handles dis 60&10 \$ Sargent & Co. So. 1 Forged Hade dis 50&10 \$ Sargent & Co. So. Forged Hade dis 50&10 \$ Sargent & Co. So. 2 Forged Hade dis 70&10 \$ Sargent & Co. So. 40 & 30 Cast Steel dis 60%26 2 Sargent & Co. So. 40 & 30 2 Sargent & Co. 50 50 50 50 50 50 50 5	Turkey Oil Stone, Chase 4 to 8 in. 8 is 60g Turkey Slips, Chase. 9 is \$2.00 Turkey Slips, Chase. 9 is \$1.00 Lake Superior. 9 is 17g Lake Superior Slips. 9 is 31g52g Stove Pelisk.	Johnson's. Penny's Appleton's Bonney's Washe
Landing Blocks. \$ 400 \$82.50 Skidding Tongs. \$ 400 \$81.00 Log Blinders. \$ 400 \$25.00 Hended Boot Calks, 1 to 5 M, dis 25 \$; 5 to 10 M, dis 30 \$ 6 Square Steel Boot Calks. 4 to 5 M, dis 25 \$; 5 to 10 M, dis 30 \$ Chain Rafting Doss. \$ 100 \$42.50	Spring, Leach's Patent. dis 15 % Semis & Call Co.'s Spring and Check. dis 40 % Solid Tinners'. \$\pi\$ dos \$1.44 dis 5 \$	Flat Head Iron	Joseph Dixor*	Wedge Steel
Ring Rafting Dogs \$\psi\$ 100, med., \$10.00; large, \$12.00	Bilding Door, Wrought Brass # \$ 35#,dis 20a224 \$ siding Door Bronsed Wrs. Iron # foot 7# siding Door Iron, Painted # foot 4#, dis 20a10a5 \$ 3arn Door, Light Iron.	Control Cont	Yates' Liquid, 2 3 5 10 gal. cans 9 gal. \$1.00 .90 .75 .65	Whiting's Well W Wire. Iron- Market.
L saunvites	Per 100 feet. 82.15 2.70 2.25 net lerry's Wrought Iron, 67 # foot. 26 feet onet Victor Track Rail. 76 \$ foot. 36 feet onet Static Stati	Bench and Band Bench Fon Gls 55&10&10 & Bench Fron Bench Fron Gls 55&10&10 & Bench Fron Bench Wood Beech Wood Beech Wood Beech Wood Beech Bench Wood Beech Gls 20&10 & Bench Wood Beech Gls 20&10 & Bench Wood Gls 20&10 & Gls	Japanese \$\forall gro \$3.50 Pireside \$\forall gro \$1.50 Pire	Market, Market Market Stone Br Stone, Br Stone, Br Stone, Ga
Woodrum's	Marie Mari	Hand Rail, Sargent's. dis 20x6 5 thand Rail, Sargent's. dis 904x519 £ thand Rail, Humason, Beckley & Uo. s. dis 70x10/g75 5 thand Rail, Am. Screw Co. dis 70 £ 10/g75 5 thand Rail, Am. Screw Co. dis 70 £ 10/g75 5 dis 70 £ 10/g75	Swedes Fron Carpet Tacks	Stone, Ga Stone, Ti Tinned i Annealed Annealed Brass and G Barb Fence
Nos 1 2 3 4B	Badger's Belt and Combination dos \$2	Rogers, complete, \$4.00	American Iron Cut Tacks	Wire on Sp Maiin's Spi Cast Steel Stube' Stee Steel Music Picture Wi Barb Wire
Each	Bay State, ordinary, in bulk	Set or Waldron, in Straw P doz \$8.35	Trunk and Clout Nails	Wire C
	07% @ 10 % from above prices: Oupper silvets ann sturrs Nos. 7 8 9 10 11 12 12 18 18 10 Rivet mets	Waldron, Sharp and Sozed. Full set of Waldron, Sharp and Bozed. \$\psi\$ dox \$\psi\$.70 Bush, Bramble and Weed. \$\psi\$ dox \$\psi\$.70 Clover. \$\psi\$ dox \$\psi\$.00 Imperfect Gram and Bush. \$\psi\$ dox \$\psi\$.00 Imperfect Grain. Means \$\psi\$ dox \$\psi\$.00 Imperfect Grain. \$\psi\$ dox \$\psi\$.70 Jobbers who give an extra 5 or 10 \$\psi\$.	Name	Wrench Baxter's A Baxter's D Coes' Genu Coes' Mec Coes Patte Coes' Patte
Chadborn's Smoked Beef Cutter	Name Author Author	Joboers Who give an extra 5 or 10 \$\frac{10}{5}\$. Sevike \$\frac{1}{5}\$ uaths	Lining and Saddle Nails, List Jan. 1, 1886: Silvered dis 30&10&10 4 Jacanned dis 20&10&10 5 Walkey Hardware Co.'s Steel Carpet Teles: Diam and Brand W dos 12¢; tinned, 16¢ Circle Brand & dos 21¢; tinned, 16¢	Girard Star Girard Agr Lamson & Lamson & Lamson & sterling W
Rnapp # Cowies	Mantia			Bemis & Ca Bemis & Ca A'ken's Pos
Bush's dis 00 \$\frac{1}{2}\$ dis 20 \$\frac{1}{2}\$ dis 25 \$\frac{1}{2}\$ di	Barn Door, Bargent's list	Heinach's, List, Dec., 1881. dls 903-10 s Heinach's Tailor's Shears. dls 339-5 first quality C. S. Trimmers. dls 804-10 806-1020 Second quality C. S. Trimmers. dls 804-10 806-1020 S Acme Cast Shears. dls 104-10 806-1020 S Acme Cast Shears. dls 104-10 for 104-104 for 104	Enterprise Mfg. Co	The Favori Webster's Boardman' Always Re Alligator Donohue's Acme. Brig
Nails Nails, het April 13, '86,dis 50&10 @ 60 4	Boxwood, other makersdis 80&10 @ 80&10 & 10 & 10 & 10 & 10 & 10 & 10 & 1	Sitising Door— M. W. & Co., list Dec. 18, 1885	Spring	Acme, Nick Acme, Bicy Walker s 1 mond
Nata and Washers. 9dos \$30,00 des 30.00 des 30	Gelf rectains, lasters Glesson's Shield and Toilet Mrs. Pott's irons. Square Back			
Pelican. P dos 80.00. dis 25 5 Boss. P dos 80.00. dis 25 5 Boss. P dos 80.00. dis 25 5 Nata and Washers. P dos 80.00. dis 25 5 Souare Suts, 9, and smaller Sole of list bequare Nuts. 7:16 and larger Sole of list veragon Nats. 9, and smaller Sole of list washers, 9, and smaller Sole of list Washers, 9, and smaller Sole of list is lots less can 100 9, F 5 add 16 10 105, 1 5 boxes. 16 to list.	S From 4 to 10, at factory \$ 100 a \$2.35 @ \$2.50 \$ 80f Heating \$ 40a. \$0.00 net \$ 80f Heating \$ 40a. \$0.00 net \$ 80f Heating \$ 40a. \$15.00 net \$ 80f Heating \$ 40a. \$ 40a	Nickel-Plating	A CONTRACTOR OF THE PARTY OF TH	lg orated
Nut Crackers. Table (Humason & Beckley Mfr. Co.)	Patent, good quality 9 8, 1346	THE AMERICAN DYNAMO ELECTRO-PLATING		A
O a dovernment.	White Coston israided, fair quality. * 28.6 a 200 Common Russia Sask.	MACHINE.	I LUND	
Others - Zinc and Tin	sytvan Spring, & Quality, 506355.dis108.106.108.108.108.5 Samson, Braided, White Cotton,	Best Plating Machine in the Market.	() () () () () () () () () ()	
Packing, Sieam N.Y. Beiting & Packing Codis 50 @ 50&10 4 American Packing	Clarg's No. 1, \$10,00; No. 3, \$8.00 w gross	HEADQUARTERS FOR EVERYTHING		
Padlecia	Bronsed Ooramon Sense, Mickel Plated. © gross \$12.00 net Duiversal Duiversal Kempshall's Gravity	IN THE PLATING AND POLISHING LINE.		1
Padlecks.—See Locks. Pails, dislyanized Water. Quarts. Hill's Light Weight, # dos. 10 12 14 Hill's Light Weight, # dos. 2.75 2.00 3.25 Hill's Leavy Weight, # dos. 2.75 2.00 3.25 Hoa Clad. 2.75 2.	Payson's Perrect Hugunin's New and Improved Adjustable Saan Bal- ances, list March, 1886. Hugunin's New Saah Locks, list March, 1886. dis 33% 5 Hugunin's New Saah Locks, list March, 1886. dis 33% 5 Stoddard "Practical" Ives Patent. dis 55 6	Va	cal Co., 538 to 564 W. 16th St., 36	6 to 40 1
E dor es on	LANGUAGE & ATURA ATURA ATURA BETO, 401 IUO, \$10, GIS BURELU \$			

nd Cheese..... dis 26 % Box... dis 60 @ 60&5 % on Boxes. Buckets, Gaivanized. # 5 34¢

Buckets, Gaivanized. # 8 54¢

Buckets, Gaivanized. # 8.50; 14 at., \$4.50

d # dos., 14 qt., \$8, dis 40 as 40 & 5 c's Fist fron Band. # dos \$4.00

Wheels—8 in., \$1.75; 10 in., \$2.05; 12 in., \$2.75 's Engineer. ight. ckeled. cycle, 414 in..dis 80&10 10 80&20 1

Materials. 1881.



IN THE WORLD OF Nickel Anodes, Nickel Salts, Patent Muslin Buffs, Polishing Lathes, Polishing Felt, Polishing Rouges, Pol'ng Compositions, Walrus Leather, Wood Emery Wheels,

Platers' Brushes, &c., &c., &c.

FICES Parers. - Monarch. - y dos \$10.00. dis 10.5 | Stoddard "Practical" - Ale 1

WHOLESALE METAL PRICES. SE

MUNTERATE	MICIAL PRIVES, SI
METALS.	LEAD.—Dury: Pig \$2 \$100 R; Old Lead, b: Pig and Sheet, 34 \$ b.
INONDury: Bars, 8-10¢ to 11-10¢ 要 by vided that no Bar Iron shall pay a less rate of than 35%. Sheet, 11-0¢ to 15-10¢ 要 b. Band, and Scroll, 1¢ to 14-10¢ 要 b. Railroad Bars ing more than 25 b 要 yard, 7-10¢ of 1¢ 要 b.	D ; Pipe and Sheet, 3\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Standard American Pig From Foundry No. 1 X. \$\text{pt ton \$18.25 (0)} \] Foundry No. 2 X \$\text{pt ton \$17.00 (0)} \] Foundry No. 2 X \$\text{pt ton \$17.00 (0)} \] Giray Forge \$\text{pt ton \$1.75 (0)} \]	Anti Mon X. 9 D 84 G 17.50 16.25 SPELTER—Duty: Pigs, Bars and Plates, \$
No. 1 Scotch Pig Iron. Carnbroe Coltness W ton \$18.50 @ Coltness W ton 19.75 @	\$ 10.00 lbs. American, cash
Shotts won 18.50 @ Glengarnock wton 19.50 @ Gartsberrie wton 19.00 @ Gartsberrie wton 19.50 @	19,00 Sheet, 244 W D. 5.50 @ 5 500 fb casss
No. 1 Scotch Pig Iron.	10.00 Zinc Tubing—Dis. 25 %. Plain Fancy Fancy Scotch and Extra Patterns.
Old Rails, Ts	22.00 N. P. U
Wrought, W ton, from yard \$18.50 @	19 00 J. B. Wirk E. Warket Wire.—Put up in 68 lb bundles. Nos. 00 to 9, 10, 11, 18, 18, 14, 15, 16, 17,
Common iron: 94 to 2 in. round and square 1 to 8 in. x94 to 1 in Refined iron: 24 to 2 in. round and square 25 to 2 in. round and square 26 to 2 in. round and square 27 to 2 in. round and square	10 11 11½ 12½ 14 15 15 2,30¢ 15 16 17 17 17 17 17 17 17
Refined Iron: A to 2 in. round and square. A to 2 in. round and square. I to 6 in. x ½ to 1 in. I to 6 in. x ½ to 1 in. Rods.—\(\) and 5-16. Rods.—\(\) and 1-16 round and sq. \(\) b 2.10 (2). Rods.—\(\) and 1-16 round and sq. \(\) b 2.10 (2). Rods.—\(\) and 1-16 round and sq. \(\) b 2.10 (2). Rods.—\(\) and 1-16 round and sq. \(\) b 2.10 (2). Burden's Best. 'Iron, base price b 2.9 (2). Burden's 'H. B. & S.' Iron, base price. Norway Rods.	190¢ WIRE. Market Wire. Put up in 68 % bundles. Nos. 00 to 9, 10, 11, 12, 13, 14, 15, 16, 17, 10
sheet Iron from Store.	G. Stone or Weaving Wire. Nos 10 17 18 19 20 21 22 23 24 25 Cents
Common American. Clear 17 to 20. W D 2.6 G 2.70 € 334 17 to 20. W D 3.6 G 2.70 € 344 21 to 24. W D 3.124 G 3.56 344 25. W D 3.374 G 3.50 € 4 4 5 and 25. W D 3.374 G 3.50 € 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	G. Nos. 16 17 18 19 20 21 22 23 24 25 Cents. 14 15 16 19 20 21 22 23 24 25 Nos. 27 28 29 30 81 32 23 24 25 Nos. 27 28 29 30 81 32 33 34 35 36 Cents. 28 29 30 32 33 35 37 40 45 55 Nos. 16 to 18
25	Galvanized Stone Wire. "75 @ 75 50 5
Galvanized 1 to 24 Galvanized 25 to 26 Galvanized, 25 to 26 Galvanized, 27 Galvanized, 27 Galvanized, 25	Brass and Copper Wire. Old English Gauge the Standard.—Dis 30 @ 25. Gildin Common Brom
American Russia	Common High Low and Brass Brass Coppe All Nos. to No. 16, inclusive
SFEEL.—DUTY. Ingots, Bars, Sheets, &c., ued at 4¢ \$\psi\$ for less, 45 \$ ad. val.; valued ab 4¢ and not above 7¢ \$\psi\$ for \$\psi\$ \$\psi\$ \$\psi\$ \$\psi\$ to valued ab 7¢ and not above 10¢ \$\psi\$ for \$\psi\$ \$\psi\$ \$\psi\$ to valued ab 7¢ and not above 10¢ \$\psi\$ for \$\psi\$ for \$\psi\$ valued ab 7¢ and not above 10¢ \$\psi\$ for \$\psi\$ for \$\psi\$ valued ab 6¢ for \$\psi\$	valore No. 17 and 18 23 27 28 27 29 27 29 27 29 27 28 27 28
10¢ W D, 334¢ W B. Extras.—Steel Bars, ac &c., cold hammered or polished, in any way addition to ordinary hot rolling, 134¢ W b in ac ton to above; Steel Circular Saw Plates, 1¢ %	O'VE 21
	8. " 29
Chrome Steel. Chrome Steel. foo. Steel, ordinary sizes, % to 3 inches, net	** 30
Hagnet Steel English Steel. Best Cast. Best Cast. D 165 @ 17	# 35
Best Cast. Best Cast. Extra Cast. Circular Saw Plates. Round Machinery. Cast. Best Double Shear But 16 German Steet, Best. But 17 Best Double Shear But 18 Best Double Shear But 19 But 1	# 40. 2.66 2.66 2.65 Spring Wire, 2 cents per pound advance. White ened Wire, 3 cents per pound advance. Flat, Square
Blister, ist quality. 9 to 10 German Steel, Best 9 to 9 2d quality 9 to 8 3d quality 17 to 10	and Half-Round Wire, 4 cents advance on Round Wire. Fancy Wire, not less than 10 cents advance on Round Wire. Spooling on one-pound Spools, 15 cents per pound extra. Spooling on ten-pound Spools or more. 2 cents per pound extra.
Sheef Cast Steel, 1st quanty 2d quality \$\mu\$ 123 d quality \$\mu\$ 123 TINDUTY Plates, Sheets, Tagger and Ters 1\$\psi\$ \$\mu\$: Bars. Block and Pigs free. \$\mu\$ 23 \$\psi\$ 23 \$\psi\$ 23.	MISCELLANEOUS TINNERS' STOCK. Solder. 16. 14 & 14 Warranted
1¢ \(\mathbb{D} \) Bars. Block and Pigs free. \(\mathbb{D} \) 23 \(\phi \) 23 \(\mathbb{D} \) 24 \(\mathbb{D} \) 25 \(\mathbb{D} \) 24 \(\mathbb{D} \) 25	16 & 16 Warranted 15 @ 18346 18476 184
Charcoat #18 box \$5.00 @ 7.	Iron and Tinned, new iist, Dec. 10, 1881
1 C 20x28, 112 10,25 (5 15.)	35 9 b 49¢ 50¢ 50¢ 54¢ 55¢ 55¢ 50¢ 65¢ 70¢ Stove Bolts.
1 X 12x12 225 aheets. 6.35 (p 9.3 1 X 14x39, 112 6.35 (p 9.3 1 U C 13\frac{1}{2}x17 100 \cdot 6.35 (p 6.35 \cdot 9.3 1 U X 12\frac{1}{2}x17 100 \cdot 6.35 (p 6.35 \cdot 6	00 R. & E. Mfg. Codis. 70 s
Best. Ordinary	
I C 10x14	EFHIEH HH HB 25. 6 x 8 to 10 x 15 \$11.50 \$10.50 \$10.00 \$9.50 \$40.11 x 14 to 16 x 94 13.00 12.25 11.50 10.75
Terms Plates. Prime Char. 2d. quality Coxe. C 14x20 M.F. \$6.75 \$6.50 C 14x20 Cld Process \$6.50 I C 20x28 18.50 I C 14x20 Cld Process 18.50 I C 14x20 C. \$6.50 4.75 I X 14x20 5. \$5.60.0 I C 20x28 875 \$6.50 58.50 \$6.80	20. 6 x 8 60 10 x 15. \$11.50 \$10.50 \$10.00 \$9.50 \$10.00 \$1
I A SUKED	84 30 x 52 to 30 x 54
Tin Boller Plates. 1XX 14x26, 2 sheets for No. 7, 11z sheets @ \$12.00 1XX 14x28, 2 No. 5, @ 18.00 1XX 14x31, 2 No. 9, @ 15.00	Double Thick.
COPPER. DUTY: Fig. Bar and Ingot, 4#: Old Copper, 3# W D. Manufactured (including all	D D D D
articles of which Copper is a composite of caree value, 35 x ad valorom. tagot, Lake	40 11 x 14 to 1 (x 34
Cold Rolled Sheet, All Sizes. 16 og. per square foot, and heavier \$\psi\$ b, 18\$\psi\$ 14 and 15 oz per square foot \$\psi\$ B, 19\$\psi\$ 12 and 15 oz. per square foot \$\psi\$ B, 20\$\psi\$ 10 and 11 oz. per square foot \$\psi\$ B, 21\$\psi\$ Tinning.	90 30 x 56 to 34 x 56,
Sheets, one side, 10, 12 and 14 x 48each, 6¢ Sheets, one side, other sizes	PAPER STOCK, Acc.
For tuning boiler sizes, 8 in., 14 x 56each, 1se For tuning boiler sizes, 7 in., 14 x 52each, 1se Sheathing Copper. (14 x 48.) Hot Cold.	White Shirt Cuttings, No. 1
16 oz. to sq. ft. and heavier, per lb. \$0.17 \$0.18 14 oz. and up to it oz., per io	Uniotechned musins
Tinning, cents each. Copper Bottoms. Pits and Flats, 14 oz	Cotton Canvas Cotton Canva
O'Netil's Patent Planished CopperNet.	Maniia Rope
14 and 15 oz. and heavier. 279 By the case. * 3 269 12 oz. and lighter	No. 2
14 and 16 os. and heavier 200 By the case. W B 280 And all sizes not over 20 in. wide.) 24x48 and 30x60. 14 and 16 os. and heavier	Soft White Shavings, No. 1. 20 20 20 White Shavings, No. 2, Soft. 214 20 20 Mixed Shavings, part White 114 40 Ledger and Writing.
Planished Brass same price as Planished Copper Copper Wire.—(See Wire.)	Solid Stock. 136 <t< td=""></t<>

Copper Wire,-(See Wi Sheathing Metal.

Vellow Sheathing Metal, ₩ D18# 6 ..

BRASS AND GERMAN SILVER. Erown & Sharpe's Gauge the Standard for Metal; Old English Gauge the Standard for Wire,

8	p	tember 22, 1886.
94	10	Black Paint, in oilkegs, 8¢; assorted cans, 1
21 53	6:	
20	3 6	Brown, Spanish.
30	8 (Dryers, Patent Americanasst'd cans, 9¢; kegs, Green Chrome15 @ 2:
1.	85 85	in oil
9 1	ø 8	Ultramarine
		Ground in oil, Bright Red
)¢ 8.	Red Red
	50	Orange Mineral.
別	9 8	Venetian (Eng.) dry
	17	" Indian Dry
100	17 18 16 1	Burnt, powdered
7		Raw
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20	e	Vermilion, Chinese
18	1.	White Lead, American, pure dry
10		White Paris, English Prime
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		" No. 1, in oil
61		in oil
y		Clis. Clis
96	1	Sperm, V gal
• •	1	Smpire Cylinder
*	1	rish Oil, Pressed
×	1	dinseed, Raw in casks and bbls
×	1	" Western. "
	A	tachinery
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r.	V	Vest Virginia
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11	B	sphaitum, Cuban, # B
4	C	Block
8	GE	rain Emery, 300 B kegs
8	G	Pasine \$\psi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
1	G	** Sheet
2		Sale Points Zinc. Dob.
8	M	ineral Wool, ordinary, W B
0	P	powdered\$3.25 @ \$2.50
0	Pi	ne Tar, bbis
		toh
	Pu	tity, in binders
	Ro	sin—Common and Good—Strained\$1.40 @ \$1.70
1		
1	Spi Ste	rits Turpentine, # bbi
1		M & N
1	W	Aste, No. 1 Cop
1		No. 2 White Machine









Write for our new Illus

lustrated Catalogue, embracing our full line of Bolts, Axle, Spring-bar and Saddle Clips, Shaft Couplings, Pole Eyes, King Bolts, Nuts and Carriage Forgings.

Columbus Bolt Works, Columbus, O.





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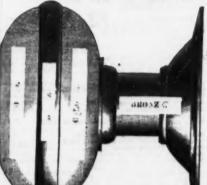
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Adjustable Countersink.

NOVELTIES.

The Boston Miter Clamp.

The illustrations given below represent this article, which is put on the market by C. Fred. Howe, 18 Arch street, Boston. Mass. Its use will be readily apprehended



Fig. 1.—The Boston Miler Clamp-Open.

from the illustrations, Fig. 1 showing the from the illustrations, Fig. 1 showing the miter clamp open, and Fig. 2 representing the position in which it is when closed. It will thus be seen that this clamp has a wrist plate which operates two levers, the word and force it tached to the plate by means of a single nut, points of which enter the wood and force it into place. With this action it will be observed that closing the clamp by moving the handle which is shown in Fig. 1 on the left over to the position on the right, as



Fig. 2.—The Boston Miter Clamp-Closed.

shown in Fig 2, binds and draws together the joint and also holds the wood firmly in place, so as to permit the driving of nails if desired, for the insertion of which it will be seen that, as indicated in Fig. 1, openings are left in the clamp. This article is neatly made of malleable iron, and is 8 inches in length. It is intended obviously for cabinet and picture-frame makers, carpenters, joiners, &c., who will appreciate its sim-plicity and efficiency.

The Bean Shot-Gun Cane.

John P. Lovell's Sons, Buston, Mass, are putting on the market this article, which is represented in Figs. 1 and 2, Fig. 1 showing it as a cane, and Fig. 2 in position for firing. When straight, as shown in Fig. 1, the hammer is out of line with the firing pin, rendering it impossible, it is claimed, to discharge it by accident. The barrel is 23 inches in length, the length of the cane when closed being 34 inches, and the weight about 1½ pounds. Special attention is called to the fact that the stock, which is 14½ meches long, drops when in

blind, and is operated from the inside of the room by a rod which passes through the side of the frame, and is made to revolve either way by turning the crank handle. This is the only part of the worker that shows on the inside of the house. Among the advantages claimed for this worker are that the blinds can be put in any desired position from the inside of the room and without raising the window screens or curtains; that they are locked automatically in whatever position they may happen to be left, and hence can never become unfastened; that they cannot be opened from the outside; that the worker can be applied to any house, old or new, and is particularly useful for bay-windows or any position where the old-style catches cannot be used. cannot be used.

The Royal Damper,

The Muldoon & Ismon Hardware Company, of Minneapolis, Minn., are making a damper, represented in the accompanying illustration, which they claim possesses many features of interest to the trade. Among the points to which they call attention is the fact

The engraving below represents a new countersink for wood screws and other pur-poses which has recently been put upon the market by Otis A. Smith, of Rockfall, Conn.



Adjustable Countersink.

The countersink consists of two pieces joined



The Royal Damper.

there being no washers or springs employed. The damper is made in four sizes, and can be furnished japanned or nickel-plated, as desired.

Anvil Vise.

The accompanying illustration represents the anvil vise which is manufactured by Hayden & Barnes, Syracuse, N. Y., whose amateur vise, which has been so widely sold, is known to the trade. It will be per-



Hayden & Barnes' Anvil Vise.

ceived that their anvil vise is manufacture which is 14½ makes long, drops when in position for firing, giving a bend of 3½ inches, being the same as that in the shotqun or rifle. It has a rebounding hammer,



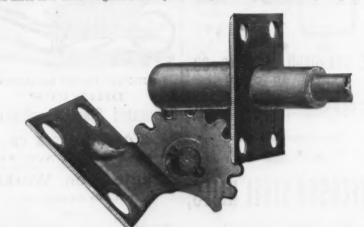
caliber shell.

Bodd Shutter Worker.

Dodd Mfg. Company, 19 Park place, New Sizes a York, indicating the changes which have No. 3. been made in it since we ga . a description the jaws being 2-inch and opening 21/2 inches,

a trigger, firing pin, and extracter. These canes are to be made both rifle and shotgun, the rifle to take a 32 caliber rim or central-fire shell; the shotgun a 40 and 20 made from Bessemer steel. It will be percaliber shell. construction the screw is covered its entire length by the bar, and is thus protected The Bodd Shutter Worker.

The accompanying illustration represents this article as now manufactured by the Dodd Mfg. Company, 19 Park place, New No. 3 has chilled jaws and anvil,



The Dodd Shutter Worker.

of the former style in our issue of May 21, and is intended for jewelers, mechanics and the who need a strong, practical and neatings are malleable iron. The worm is entirely covered except where it connects with the gear, and a stud and cotter-pin are

used for the pintle instead of a screw. By this means it is claimed that much has been added to its efficiency, simplicity and durability. The worker, it will be seen, takes the place of the bottom hinge of the shutter or

arranged to move up or down by means of lotted holes through which the screws pass, thus adapting the conical cutter, which is a feature of the other piece, to cut more or less, as may be required. The article does its work very efficiently, and can be instantly adjusted to fit any size screw-head that may be required. The usefulness of such a tool where hardwood finish is to be put in place will be readily appreciated by our readers.

MANUFACTURING.

Iron and Steel.

Furnace F, now being constructed at Braddock by Carnegie Bros. & Co., of Pittsourgh, will be ready for operation the latter part of next month.

Twelve of the Harden self-feeding nail Twelve of the Harden self-feeding nail machines placed in the nail factory of the Etna Iron Works, Limited, at Newcastle, Pa., have given such complete satisfaction hat 30 more have been ordered, and will e put in position as soon as possible

About two months ago the workmen employed at the Lucy and Isabella furnaces, Pittsburgh, demanded a restoration of the ages of 1884, an increase of about 714 per e.nt. The demand was refused, when both c. nt. The demand was refused, when both sides agreed to submit the matter to arbitration. John Jarrett, formerly president of he Ama'gamated Association, was chosen to represent the men; J. W. Bailey, of Phillips, Nimick & Co., to represent Carnetie, Phipps & Co. and John F. Slagle to act as umpire. At a final meeting of the arbitrators, held last week, they unanimously decided that the demand was unwarranted and the firm could not pay it.

The Pittsburgh Steel Casting Company, of Pittsburgh, are running full time on their special brands of bridge, forging and other steels. They report business this year greatly in excess of last year.

The new nail mill erected by the Belleville Steel and Iron Nail Company, at Belleville. Ill., is now in complete running order and ready for business. fully equipped with first class machinery of improved pattern. The nail machines, 60 in number, were built by A. J. Sweeny & Son, Wheeling, W. Va. The factory building is 80 x 170 feet and is covered with corrugated iron, as are also all the other department buildings.

St. Louis, have about completed the new until such time as our trade will warrant addition to their foundry, under whose roof their force of molders can be increased by machinery from it. The first heat was taken off 40 or 50 men. their new cupola on Monday the 13th inst.

The Mahoning Valley Iron Company, of Youngston, Ohio, inform us that the strike of their nail feeders for three-fifths instead of one-half the amount paid to the nailers has been settled, the feeders returning to work at the old terms on the 13th inst. The above company have crdered a number of self-feeding nail machines, and will equip their factory with them as soon as they prove competent to do the work.

The ironwork for the new blast furnace which is being built at Laughlin Station, on the Baltimore and Ohio Railroad, by Laughlin & Co., of Pittsburgh, is almost completed. The furnace, hot-blast ovens and the draft-stack are all up, ready to be lined. and this work will soon be commenced and vill require over 1,000,000 fire-bricks.

On Tuesday, the 14th inst., the Bothlehem Iron Company, of Bethlehem, Pa., shipped 72 carloads of steel rails over the Lehigh Valley Railroad for Western points. The rails go to Buffalo, and are there transferred by steamers plying on the Lakes to their

meeting of nail manufacturers had been of the several buildings will be as follows: held in the Monongahela House in that city. We learn from reliable authority that no meeting of nail manufacturers has been held ince the last regular monthly meeting of the Western Nail Association.

The Selma Iron Company has been organ sted at Selma, Ala., with a capital stock of \$50,000. The following are the officers of the new concern: George O. Baker, president; Owen N. Montgomery, vice-president; and Joseph M. Baker, secretary and treasurer.

Perkins & Co., Limited, of Sharpsville, Pa, inform us that they have blown out their Mabel Furnace for the purpose of relining and making other repairs. The fur-nace has been in blast almost two years and has had a very successful run, making in the past month between 2500 and 2600 tons of pig iron. It is expected to blow in again out October 1st.

The Woodward Iron Company, of Wheel-The Woodward Iron Company, of Wheeling, Jefferson County, Ala, state that the reports concerning the building of a pipe foundry at their works are largely incorrect. They do, indeed, intend to build such a foundry, but there are no Pittsburgh people connected with it in any way whatever. The works are not designed to use 200 tons of iron a day or anything approaching that amount, and inasmuch as the concern will be built by and oversted explaying in the be built by and operated exclusively in the interests of the Woodward Iron Company, no contract like that stated by our Birming ham correspondent has been made.

The Old Dominion Iron and Nail Works Company, of Richmond, have contracted with Messrs. Gordon, Strobel & Laureau, en-gineers and constructors, of Philadelphia, to build a complete Bessemer steel plant on Belle Isle. The plant will have two melt-ing cupolas, two converters, soaking pits and hydraulic cranes to handle materials and finished steel. The boilers will be of the Babcock & Wilcox water tube type, and sufficiently large to run the whole plant, which will make 200 tons of steel per day. The works will be run with producer gas. The blowing engines are 36 by 48, and will be nearly 20 feet high, and of sufficient capacity to permit additions to be made to the plant if desired. The main house will be 130 feet long and 60 feet wide. The steel made will be partly for nails, but that is only one of its uses. All kinds of bridgework, machine steel, wire rods, and bar steel will be offered to the trade.

The directors of the Centralia Nail Mill, Centralia, Ill., are about to consider the adisability of putting up a steel plant.

Machinery.

Messrs. Byram & Co., Detroit, Mich., have Messrs. Byram & Co., Detroit, Mich., have recently made shipment of their Colliau cupolas to the following concerns: Lake Shore Foundry Company, Cleveland, Ohio; Peteler Portable Railway Mfg. Company, Minneapolis, Minn.; Whitman & Barnes Mfg. Company, Canton, Ohio; Register & Sons, Baltimore, Md.; Robt. Allison, Port Carbon, Pa.; Oneida 'Community, Limited, Niagra Falls, N. Y.; Henry D. Hall, Salem, N. J.; Missouri Malleable Iron Company, St. Louis, Mo.; S. L. Bignall Hardware Company, Chicago. pany, Chicago.

The Roller Chain Belting Company, of Columbus, Ohio, have recently supplied about 10,000 feet of roller chain to a Colorado smelter, besides several hundred feet to a St. Louis elevator for conveyors, &c.

The Warren Foundry and Machine Com-pany, of Phillipsburg, N. J., manufacturers of cast iron gas and water pipes, report a fair trade

The Waterbury Farrel Foundry and Machine Company, of Waterbury, Conn., have sent a large rolling mill to Reed & Barton, of Taunton, Mass.; chilled rolls, 18 inches diameter and 30 inches long; whole weight of mill, nearly 100,000 pounds. They now have several sets of rolls in the works for a large brass rolling mill to be located near Chicago. About 100 power presses are on hand also for different parts of the country. In these presses, as also in their bolt and rivet machines, important improvements have recently been made. In getting up a large hydraulic draw-bench for drawing solid brass tubes the company recently designed a hydraulic valve which has given great satisfaction, and has accordingly been patented. In their line of special machinery recently The Waterbury Farrel Foundry and Ma In their line of special machinery recently delived to purchasers we note a complete usiness. The first kee of nails outfit of machinery for making iron strap out September 11. The mill is and T hinges. This was sent to Lindsay & McCutcheon, of Pittsburgh.

The Anchor Brand Axle Works, of Auburn, Y., under date of September 18, write Our new shops at Wilkesbarre are very nearly completed, and we shall commence ugated iron, as are also all the other deartment buildings.

The Missouri Malleable Iron Company, of the first day of October. We shall continue to run at least one of our shops in Auburn until such time as our trade will warrant distinct.

> The Humphryes Mfg. Company, of Mans field, Ohio, are erecting a two-story brick machine shop, 38 x 240 feet, and a one-story brass foundry and blacksmith's shop, 30 x 140 feet.

G. M. Stanwood & Co., Portland, Me. have recently shipped to Bagnall & Loud, Boston, a block machine weighing 5 tons. The dies for this machine, made by this firm, weighed 13,000 pounds. This firm This firm hav clately received an order from Austria for a set of Russell pumps and pipe for the

The new plant of the Todd Pulley and Shafting Works, East St. Louis, is rapidly approaching completion. Some of the de-partments are now completed and ready for

Hardware.

The cartridge manufacturers of Lowell, Mass., are running overtime to fill orders, and have orders for between four and five months ahead. The present capacity is 125,000,000 per annum.

by steamers plying on the Lakes to their destination.

The contract for the erection of the buildings of the Iowa Barb Wire Company in Allentown, Pa., has been awarded to Martz the third shaft and works. The surveying peared statements to the effect that a secret & Edwards of that place. The dimensions has been completed, and the new works will

Main building, 100 x 186 feet; wire mill, 75 x 225; galvanizing-room, 60 x 189; engine-room, 16 x 16; boiler-house, 46½ x 65. All the buildings will be of brick, one story, of a height of 15 feet, and slate roof. The contractors are to furnish all the material, paint the buildings and have them ready by January 1st, by which time it is expected to begin operations.

The co-operative cutlery scheme at Beaver Falls, Pa., is still under way, and those inter-ested in it assert that it has not fallen through by any means. They claim that over two-thirds of the stock has been already subscribed, and that they will have but little difficulty in placing the balance.

The Washburn & Moen Mfg. Company have filed suit against the Freeman Wire Company, of St. Louis, claiming damages in the sum of \$15,000 for infringements of barb wire and machine patents, and asking that the defendant company be enjoined from further use of such patents.

The Western File Works, which have been shut down for the last three weeks to make repairs, will start up full-handed and with plenty of orders on Monday next.

The Hartman Steel Company, Limited, of Beaver Falls, Pa., have secured the controling interest in a patent machine for the manufacture of steel-wire picket-fence, and in a short time another building will be added to their already large plant and the work of manufacturies in the feature of the state of the work of manufacturing the fences begun. The new building will be a frame ironclad, 35 x 70, and will be completed as rapidly as possible. The above company inform us that the demand for their steel wire mats is greater than can be supplied at present, al-though their weaving department is running night and day. At present they are turn-ning out 80 mats per day, but will at once erect four additional weaving machines, which will increase the output to 125 per day.

The weaving department in the Hartman Wire Manufactory is now running double turn. The balance of the factory will be put on double turn as soon as boys enough can be trained in the works Orders for the wire mats are said to be coming in from all parts of the country.

About 85 rollers, hammerers and melters employed in the steel department of Henry Disston & Sons' saw works, Philadelphia, are reported to have gone on strike on

Miscellaneous

At a meeting of the Connellsville coke syndicate, held recently, it was resolved to close down all its works on Wednesday of each week till further notice, on account of the decreased demand for coke, caused by several furnaces having gone under repairs and others having a full stock of coke.

The following table from the Marquette (Mich.) Mining Journal, exhibits in gross tous the total lake shipments of iron ore from the mines of the Marquette, Menominee, Gogebic and Vermillion ranges for the current season up to and including Wednesday, the 15th, together with the shipments from the same ports for the corresponding period last

Name of port.	1886.	1885.
Marquette	689,874 1,060,845	526,250 906,340
Escanaba	49,583	19,136
St. Ignace	478,016	69,791 42,587
Two Harbors, Minn	224,529	165,260

The gain over the shipments for the corresponding period of last seas a being 713,433 gross tons.

is very attractive and proves a great source of pleasure and instruction. In the center of the large cross halls is a tower made of Louisville cement. It is about 40 feet high, and forms a series of heautiful with the water gracefully falling from ledges and projections, and at night the whole tower is lighted from within by electric lights. On each side of the entrance to the art gallery, which is opposite Music Hall, is Scanlan & Co.'s exhibit. This is one of the finest displays of mantels and grates ever shown here, and also a full and varied line of brass goods—such as caudelabra, shelf ornaments, fire screens, lamp tables and fire-irons, all of polished brass. The mantels The mantels are of marbleized iron, handsomely orna-mented, and richly carved hardwoods. The Meikle Plow Company, formerly Thos. Meikle & Co., have a very large exhibit of their plows and cultivators. Their Blue Grass sulky plow has been remarkably suc-cessful. They have just brought out a new Their Blue coston and corn cultivator, both walking and sulky, which is a great improvement. Near the Sixth street entrance is the exhibit of the Hammond type writer. This machine embraces many excellent qualities—such as perfect alignment of lettering, eveness of stroke, &c. Nine styles of type can be used. stroke, &c. Nine styles of type can be R. W. McBride is the Southern agent.

The Connellsville Coke and Iron Company, of Philadelphia and Pittsburgh, have de-cided to put down another coal pit, build 500 new coke ovens and erect extensive new works near Leisenring, Pa. The proposed enterprise is carrying out a programme which the company mapped out some time During the early part of the present year they purchas d 9000 acres of c at Leisenring with the intention of putting down five shafts and erecting 2500 coke ovens. Two shafts have now been sunk be erected in close proximity to the ones now in operation. The work of sinking shafts and erecting new buildings will be started as soon as possible.

The Pittsburgh Copper Works, at Pittsburgh, turned out five plates each weighing 2,000 pounds and being 176 inches in diam-eter. They are intended for whiskey stills, largest which have ever been his firm. The new addition to and are the made by this firm. these works is rapidly nearing completion.

The charter of incorporation of the Belle vue Natural Gas Company was filed at Pitts-burgh last week. The capital stock of the company is \$50,000 in \$50 shares.

The Severn Tunnel.

Within a few days of 12 mouths ago, says Engineering (London), the railway tunnel constructed by the Great Western Railway Company under the river Severn was completed and informally opened by an experi-mental train being successfully run through A few months later a goods train traveled through from Aberdare to Southampton, but even then the tunnel throughout was not ready for general service. Much more had to be done in regard to absolute pumping and ventilating machinery, and the com-pletion of other extensions of the line in connection with the tunnel. Since January this work has been energetically prosecuted, and at last, on Wednesday, September 1, this important addition to the company's system is to be opened—only, however, for goods, for something yet remains to be executed before passenger trains can be introduced, but even for goods along the tunnel will be before passenger trains can be introduced, but even for goods alone the tunnel will be of great value. Compared with such gigantic works as the St. Gothard Tunnel, 9½ miles long, the Mont Cenis Tunnel, 7½ miles long, and the Arlberg Tunnel, 6½ miles long, this Severn Tunnel may perhaps be considered a small affair, but it is 4½ miles long alter as the long attempts when long altogether, and it is the longest sub-aqueous way yet made. It is also the long-est tunnel in England, and its construction has been attended by circumstances of difficulty peculiar to cuttings under water, such as are not experienced in the boring of land subways. In the latter operation there may be, and often have been, serious obstacles to overcome owing to the nature of the material to be penetrated, and in some cases springs have been tapped which caused inconve-nience; but the quantity of water was not very great and was easily withdrawn, and powerful drilling machinery has been em-ployed to pierce the rock. In tunnelling beneath a wide river there have to be faced not only the ordinary conditions of strata and underground springs, but also the risks and underground springs, but also the risks of an inflow of the stream above. This danger was happily not realized in the construction of the Mersey Tunnel, but that tunnel runs for only a mile under the water, and the river at that point is as a rule comparatively calm. The Severn undertaking, however, presents a very different story. At the point chosen for the tunnel the river is 2½ miles wide, and this estuary is described as more ocean-like than that of any ordinary English river. Moreover, it is characterized by rocks of a dangerous and solid nature, and there is a difference of as much as 60 feet between high and low tide. These circumstances would not necessarily These circumstances would not necessarily cause an incursion of water, but, as a matter cause an incursion of water, but, as a matter of fact, the construction of the tunnel was several times stopped, and the whole undertaking jeopardized, both by river and land water. Considering the impediments that have had to be overcome, together with the period occupied, the execution of this work may rightly be regarded as a great feat of excinering skill and the opening of the engineering skill, and the opening of the tunnel for actual, though partial, public serrice is an event of real importance.

When the great Western system was car-

When the great Western system was carried on to Bristol by Mr. Brunel the intention was to connect it with South Wales by a steam ferry, capable of carrying across the Severn not only passengers, but even loaded goods trucks. Subsequently, however, it was found that only a passenger ferry would be practicable, and consequently the technology. up to the present the goods and minerals have had to be taken by a circuitous route in order to cross by a railway bridge. Powers to make this tunnel were sought as far back as 1864, but the attempt failed then, as did likewise a second eff rt in 1870. In 1872, however, an act was obtained, and the company straightway proceeded with the enterprise. Several shafts were sunk on both sides of the river, and the works were carried on from each end. An experimental heading, about 7 feet high by 7 feet wide, was driven through, and good progress was made. In October, 1879, however, when the two headings were within 120 or 130 yards of meeting, the heading under the Monmouth shore tapped a big frosh-water spring, and in 24 hours that half of the work was flooded. Up to that time Mr. T. Richardson was the engineer conducting the work, Mr. (now Sir John) Hawkshaw acting as consulting engineer, but after this disaster Hr. Hawkshaw became engineer-inchief, with Mr. Richardson as coadjutor. did likewise a second effort in 1870. In 1872, however, an act was obtained, and the chief, with Mr. Richardson as coadjutor. Upon his advice the bottom level of the tunnel was lowered by 15 feet, and in other ways the original design was altered; the company also transferred the work of con-struction by contract to Mr. J. A. Walker. Two brick dams of enormous strength

and great thickness were built across the heading down which the water had flowed in, and thus further approach to the shafts and works under the Severn was prevented. Powerful pumping engines were then set to work, and by the end of the year the was withdrawn and excavation could be resumed. During the operations of clearing the works a very difficult and dangerous task was accomplished by a diver named Lambert. At a distance of 1000 feet from the bottom of the Sudbrook shaft there was a door, which required closing across the drift under the river. Assuming a Fleuss diving dress, and carrying a heavy crow-bar, Lambert descended the shaft, made his way toilfully through the flooded heading to the door, and succeeded in shutting it. This

effected, the work was carried on vigorously, and by the autumn of 1881 the two headings met and a through passage was obtained. Prior to this, however, viz., in April, 1881, a slight but troublesome mishap had oc-curred. While the brickwork from the seawalls shaft was being completed a hole to feet across was found in the marl near the Gloucestershire shores, and through this the water again rushed in too strongly for the pumps. By the use of clay puddle the hole was filled up, and the pumps cleared out the water. By the autumn, as we have said, the junction between the two cuttings was effected, and all went on well until October, 1883, when another catastrophe took place by which the whole work was again threat ened with destruction. As mentioned al-ready, the level of the tunnel was lowered after the first flooding, and while the men were at work in these lower levels, on October 18, 1883, the spring which had burst through in 1879 was again tapped, and the water rushed in in enormous volume. The inflow was estimated at 27,000 gallons a minute, and very soon a considerable portion of the completed work was flooded. Once more the diver Lambert came to the rescue, but this time with assistants. Again a door had to be reached and closed, 500 feet from the bottom of the shaft. Placing one assistant at the foot of the shaft, and another 250 feet forward, with the air-tube he made his way to the door, and, as before, succeeded. Meanwhile the pumps had checked the flood, and, additional pumps being laid on, the tunnel was cleared in about a fortnight. So far the two most serious interruptions had come from the fresh-water spring, but the contractors had yet to doal with an inroad from the river. On one occasion a huge tidal wave flooded a portion of the workings, but this was soon dealt with, and to guard against a repetition flood banks were eventually erected with a hight of 5 feet above the highest flood known. All these obstacles at last sur-mounted, the work was hastened on, and in October, 1884, the chairman of the commit-tee, Sir D. Gooch, was able to pass through from the Euglish to the Welsh heading. A year later the first train went through; year later the first train went through; after September I goods and mineral traffic will be established, and probably within three or four months, after some completing operations have been effected, the whole of the new system will be available also for passengers. The total length of the tunnel is 7664 yards, or, say, nearly 4½ miles, and to these the open approaches add something like the same distance.

The hight of the tunnel is 20 feet from

like the same distance.

The hight of the tunnel is 20 feet from the rails, with a width of 20 feet. In the deep parts of the work the tunnel is lined with Straffordshire and other vitrified bricks set in cement, 3 feet thick, but as it rises the thickness is gradually reduced to 2½ feet. The water, at what is called the "shoots," is 33 feet at low water and 91 feet at high water, and at this point the tunnel has a covering of 45 feet, though tunnel has a covering of 45 feet, though under the depression called the "salmon pool" there is a covering of only 30 feet. under the depression called the "salmon pool" there is a covering of only 30 feet. On the Gloucestershire side the gradient is I in 100 down to the lowest point under the "shoots," whence it rises I in 90, the heaviest loads being expected from Wales. With a view to the drainage a culvert 5 feet in diameter is provided, falling from the lowest point in the tunnel to the Sudbrook shaft. The water entering the works in the open cuttings will be intercepted at either mouth of the tunnel, and there pumped at the higher level, in order to reduce to a minimum the pumping at the to reduce to a minimum the pumping at the Sudbrook shaft. It is believed that the pumping may be reduced to 5000 gallons a minute, but unless the plan has been recently changed permanent machinery is or will be provided capable of four times that amount of pumping. Equally powerful and adequate ventilating apparatus is also provided. Altogether II shafts have been sunk—three on the English side, eight on —three on the English side, eight on the Monmouthshire side—and between 70,000,000 and 80,000,000 bricks have been consumed. Over 700,000 cubic yards of ex-cavation have been accomplished, and during cavation have been accomplished, and during one month as many as 400 yards were tunneled. More than a mile of the tunnel was cut through the Pennant sandstone of the coal measure; ½ mile through conglomerate overlying the Pennant; ½ mile through shale of the coal measure, with occasional beds of coal, one of which was a

Work on the new club-house for the Vanderbilt employes, to be erected on Madison avenue and Forty-fifth street, will be commenced immediately. The main building will front 79 feet on the avenue, and be three stories in hight, with a tower. The material is Philadelphia brick, decorated with terra-cotta

John R. Whitley, representing the American Exhibition to be held in London next summer, and who has been in the United States for the last six months, says that preparations on this side are well advanced.

A yacht propelled electrically started from Dover across the English Channel to Calais, on the 13th inst. She reached Calais in 3 hours 51 minutes. The return trip was made in 4 hours 15 minutes. The accumulators, as reported, were charged only once for the whole journey of 50 miles.

was, however, only managed with extreme difficulty and the exercise of great strength, for the door had got stiff on its hinges, and the diver was under water nearly an hour and a half. The clearance being at length

will then represent an expenditure of \$3,000, will then represent an expenditure of \$3,000,000. The estate of Herman B Aldrich, represented by Spencer Aldrich, is speading \$1,500,000 on a large 10-story edifice at Nos. 41, 43 and 45 Broadway, running through to Trinity place. Near Madison square, upon southeast corner of Broadway and Twentieth street, Robert and Ogden Goelet are building a streature positionable (cr. its. subbuilding a structure noticeable for its sub-stantial strength and simple beauty. D. H McAlpin, the millionaire tobacco manufacturer, has nearly completed an elaborate edifice which is to be fitted up for bachelors' apartments and studios, on the corner of Broadway and Thirty-third street, while three blocks further on Louis L. Todd, the proprietor of the family hotel the Vendome, encouraged by his success there, is laying the foundations for a still larger home. tel, to be called the Grosvenor House. Thes are among the finer examples of architectu ral skill which now attract attention.

Mr Denby and the other foreign ministers at Peking protest against the further ob-struction of the South Channel at Canton by order of the Chinese Government. He ontends that under the treaties no country has the right to destroy access to its ports

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The Severn Tur The Week.... a and Pittsburgh Haroware and ston Hardware and Metal Prices.

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The above cut represents our new "King" Well-Buckst. This Bucket is made of best Oak Timber, is nearly ironed and nicely finished. This is the strongest and best Well-Bucket ever diered to the trade, and we claim the following

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In the ordinary pattern of 4 and 6 prong Weeders, the Iron Shank and the Blade are welded on; they easily break off, and the tool cannot be polished well.

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Dear Sir; I have much pleasure in informing you that the Cable Chains used throughout my house, built twelve years ago, have not in a single instance given any trouble, and see no reason why they should not last a lifetime. Yours respectfully,

P. C. BARNUM, 108 Chatham Square, New York.

ME. THOMAS MORTON.

Inst a liresume.

P. C. BARNUM, 108 Chatham Square, New York.

Mr. Thomas Morron.

Dear Sir: We take pleasure in testifying to the excellency of your patent Champion and Cable Sash Chains. The best endorsement we can offer is that in no instance coming under our observation, where it was properly hung, has it failed to give entire satisfaction. We can cheerfully recommend your Sash Chains to all parties that contemplate building, and can say our sales have increased a hundred-fold in the last six months. It is becoming very popular, has worked a revolution, and will in time supersede all sash cords.

Respectfully yours,

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Holds from 500 to 800 feet of 2%-inch Hose; 44-inch Wheels; Patent Swing Tool Box; no weight on handles; nickle-plated trimmings; light and casily handled. Frice, including 300 feet best quality 2%-inch Linen Hose, coupled, \$100.

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Will extract the LAST DROP of juice from large and small lemons in five seconds.

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THE WEEK.

The Canadian Pacific Railroad is aiming to secure an independent branch to Chicago. It already has a controlling interest in the Minneapolis and Manitoba Railroad, and further developments are looked for.

An elevated railroad company has been organized in Philadelphia to build a system of tracks in various parts of the city at a cost of \$6,000,000; Geo. H. Baker, president.

Some months ago it was stated that a plan of electric signaling from balloons was inthe British military authorities at Chatham, and it appears that it has given entire satisfaction. The light thrown down by an illuminated balloon was so brilliant and oon was at a considerable hight that some one suggested that such a light might well be made use of for conducting certain military operations at night.

The records show that property in this city valued at about \$200,000,000 has changed hands since the year began, and that buildings have been begun which are expected to cost about \$45,000,000. This indicates an increase of about 25 per cent. in the amount of sales, while the cost of projected buildings is on a still larger scale.

The project of bridging the Thames River, near New London, Conn., in the interest of the Shore Line has been abandoned. The soundings showed 35 feet of water and 70 as contrasted to 6½ and over before men-feet of mud, and the requirement of the War Department that the bridge should be 32 feet above high water would bring the cost up possibly to \$2,000,000, the interest on which would be double that of operating

The Montreal lumber trade is almost wholly with South America and the West Indies, while the deals are sent to Great Britain. As many as 80,000,000 feet of deals were exported from that port last Sir William Armstrong, Mitchell & Co., in year, which was 100 per cent. more than the shipments of 1884. The exports of the current year will be considerably in excess of those of last year. The South American trade shows a steady increase since 1876. In 1884 the whole export from the in the company ranging in value as high Belvidere Hotel, which will cost \$1,000,000 St. Lawrence was nearly 37,000,000 feet; last year it was 31,344,543, of which 26. 465,543 went from Montreal. Commercial Agent Hotchkiss, at Ottaws, in the course of an exhaustive report to the Secretary of State upon the lumber industry of Canada, says that while the increased export duty upon saw logs is published as being from \$1 to \$2 per 1000 feet, board measure, it is evidently intended that when the export becomes developed the duty shall be further increased to \$3 under the discretionary power vested in the Governor-General, which rate, it is supposed, will be prohib

A cyclone which swept through Illinois and Indiana on the 16th inst. made havoc with roofs in Michigan City, Terre Haute, Shelbyville and many other points.

H. G. Trout, of Buffalo, N. Y., has con tracted with B. Mills & Co., of Buffalo, to furnish a fore-and-aft compound engine, cylinder 28 x 52 by 45 stroke, for the 2000ton steamer they are to build; also for a fore-and-aft compound engine, 28 x 50 by 42 stroke, with George Berriman, to put inte steamer building by Radcliffs, of Cleveland. He will also build one for Capt. James Davidson, of Bay City, Mich., which will be 28 x 52 by 45 stroke.

The Pittsburgh Copper Works last week turned out five plates each weighing 2400 pounds and being 176 inches in diameter, They are intended for whisky stills, and are the largest which have ever been made by this firm.

The British have secured a coaling station on the Roumelian coast. Rival powers seek facilities for supplying their steamers with fuel as a consideration of the first impor- lay will be of but little consequence. tance, whether in war or peace.

The revival of the lake shipping trade this year has given a fresh impetus to ship con-struction. At all of the principal building ports the shipyards are crowded with new work.

Baltimore is receiving a large proportion of the grain trade. The preference shown for that route by Western shippers was sup-posed to be due to the New York system of inspection, which in many instances recognizes "no established grade," but an examination does not show that it is justified. It is expected that the New York Produce Exchange will soon take action on this subject.

An astronomical writer in the Philadelphia Ledger discourses upon the grand reveservatory, with its 36-inch object glass, is complete. There is a provisional underpower capable of heing used on a telescope 12 inches, of 1200, and so on. Applying moon to appear as if it were only about 70 \$15,000 each for suitable plans for the two cision by Corporation Council Lacombe

eye, a view which would bring into sight objects no larger than many of our buildings. The atmospheric disturbances would modify this very seriously at our altitude, but these are supposed to be reduced to a minimum on the choice site on Mount Ham-

The merits of the electric motor as contrasted with the steam engine are discussed by John Murray Mitchell, S. E. E., who laims a great success in the application of electricity for the conversion of coal energy into steam power, then into electricity, and its reconversion into energy by use of elecvented by Mr. Eric S. Bruce, having special tricity. In evidence he refers especially to advantages for army purposes. This method the running of the street railway in Baltiof signaling was tried a short time ago by more, which has been in operation more than a year, and says: "The reason that it is more economic than the locomotive or small stationary steam engine is that the locomotive and small steam engine burn diffused over so wide an area when the bal- from 61/2 to 15 pounds of coal per horsepower per hour, according to their size and construction, the large steam engine, on the ontrary, such as 100 horse-power and over, burning from 3 to 11/2 pounds of coal per horse-power per hour, according to their size first-class Sound steamer than a clock, and perfection of construction. It has been The New York Charities Commission proved that 70 per cent. of this power can be recovered at the place of consumption of the power, whether it be on the track or for use in factories. In other words, only 30 per cent. of the power is lost in the transmission and conversion of energy by electricity. Admitting that 50 per cent. is lost in transmission instead of 70 per cent., we would thus have our power for from 41/2 to 21/4 pounds of coal per horse-power per hour,

Cholera is making alarming strides in Japan and Korea. Precautions against its appearance in the United States should not be relaxed.

Newcomers at our hotels are shown the cot in the parlor."

A London paper publishes a partial list of the stockholders in the ordnance factory of proof of the charge that the army and navy officers are pecuniarly interested in the contracts of that firm with the Government. Each of the persons named, many of them high in official station, appears to own shares developments are promised.

These is said to be a severe hitch at Madrid in the commercial treaty with the United States, arising from alleged ambiguity in defining what constitutes direct and indirect shipments. The Spanish traders phrase contended for by the American Government is admitted, it would destroy is left to Spanish shipping.

The cornices and gutters of the extensive school buildings just completed at West-town, Chester Co., Pa., for the Orthodox Friends are wholly formed of copper, and the cost of the entire structure is \$200,000.

The Parrott Iron Works, at Greenwood, Orange County, which suspended more than a year ago, were sold at foreclosure sale 17th inst. by William Van Amee, at Goshen. The purchaser was E. W. Harriman, of New York City, and the price paid \$52,500. There were 46 plots of ground, comprising 10,000 acres, on which there was a mortgage of \$150,000. The plaintiff in the action is James Paulding.

Eli Whitney Blake, inventor of the Blake stone crusher, and a nephew of the late Eli Whitney, inventor of the cotton gin, died in New Haven 18th inst., aged 91 years. He was graduated from Yale in 1816, and received the degree of LL.D. in 1878.

The work of repairs in Charleston is someprobable that steps will be taken to procure workmen from the North and elsewhere who will work for reasonable wages the de-

Reports received from planters in the cane growing parishes of Louisiana indicate that the sugar yield will fall about 15 per cent. below that of 1885.

The reception ceremonies to be tendered the delegates to the General Convention of the Knights of Labor at Richmond, October 4. comprise an address by Governor Fitzhugh Lee.

The New York Chamber of Commerce will agitate the subject of harbor improvement at their next meeting, also Mr. Hewita's bill creating a Court of Customs.

John Roach has received from the Government \$45,000 in settlement of all claims on account of the dispatch boat Dolphin lations to be expected when the Lick Ob- and monitor Puritan. The law of August United States to another to complete such 3, 1886, requires the contracts for the new ships to be let to the lowest and best responstanding among astronomers that the highest sible bidder or bidders for the work which they offer to undertake, but the Secretary of Western Union Telegraph Company are now will not exceed 100 for each inch of aper- the Navy is also authorized to reject any or entering upon a legal contest of which the

miles distant and were seen with the naked double-bottomed armored steel vessels of 6,000 tons displacement authorized by the act of August 3, 1886, it is thought, will not appeal in vain to the inventive skill of American shipbuilders. It is learned that several young and ambitious officers of the navy intend to compete for these prizes under assumed names, so that the designs presented may be judged upon merit alone, and it is also expected that all the prominent shipbuilders and designers of this and other countries will submit designs for these

> An importer in Barclay street, this city, exhibits a rare novelty that might be called a "steam-engine clock," made in Paris, at a cost of \$250. Beneath the dial is a finelypolished upright steel cylinder, with the piston in active motion, while above is the revolving fly-wheel, surmounted by a gilt governor, the latter parts of the mechanism exactly filling the space within the glass dome, the periphery of the fly-wheel con-forming to the outline or arch described by the casing. The engine, with its lateral supporting metal columns and moving parts above and below, more resembles that of a

> The New York Charities Commission proose to erect a model penitentiary on Riker's Island to cost \$1,000,000. Most of the stone required is already prepared at the Blackwell's Island quarries

> Inspector Byrnes says all the improved locks and safes, as fast as they come out, are carefully studied by the first-class burglars, whose skill keeps pace with that of the mechanic and even goes beyond it, but so many expert cracksmen here have bad locks and bolts shut against them that this once flourishing industry is severely depressed.

> Another model tenement is being erected at a cost of \$100,000, on Fourteenth street and Avenue C, by Wm, B. Cutting, president of the Improved Dwelling Association, and his brother, Fulton B. Cutting. The ground dimensions are 114 x 88 feet, the hight six stories. The two main entrances and stairways will be wholly fire-proof. The object is not so much to make rents lower as to give poor people superior accomodations for their money.

The Adams Express Company will erect a fire-proof building for commercial and storage purposes on Fourth avenue, above the as \$200,000 or upward, and interesting On the lower floor tracks will be laid for the entrance and departure of cars, more especially for the accommodation of Eastern

Acting Attorney-General Jenks has given an opinion to the Treasury Department in regard to the provisions in the Tariff Act declare that if the interpretation of the imposing a duty of 75 cents per ton upon ore. The question arose on a claim of a firm of importers that the provision for the last remnant of the preference which iron ore refers to ore dry at the temperature of 212° F., which it is understood is the test or standard adopted in commercial transactions. The Attorney-General holds that if iron ore dried at a temperature of 212° F. be what is known in commerce as iron ore, it is the ore contemplated by the statute, and on that basis the duty should

> The new United States steamer Atlanta made an average of over 11 knots an hour through Long Island Sound to Newport, and her engines worked satisfactorily.

Mayor Harrison, of Chicago, has been interviewed respecting the anarchists now awaiting trial, and takes ground that they should be sentenced to the penitentiary for life rather than hanged, unless Lingg, the bomb-thrower, is excepted. He says: imprison these men, with shaved heads and striped suits, in the penitentiary would be to disgrace and degrade their cause, but to hang them will be to dignify them and make them martyrs, and the blood of the martyrs is not alone the seed of the Church, but the what retarded by the exorbitant demands of baptism of the cause for which that blood is certain classes of mechanics, but as it is shed. It would not do for us to make the probable that steps will be taken to procure in instake of thinking that this is but a handful of men. There will be no more bomb throwing; that is ended. But there will be an immense amount of feeling and of sentimental following, strengthening the great column behind, which at present does not sympathize with the throwing of those

> The Customs Department at Ottawa give notice that, as there is no reciprocal coasting trade between Great Britain and the United States, United States vessels cannot be allowed in any manner to participate in such trade; such vessels cannot go from place to place to take in cargo. On the point in question our laws have allowed full reciprocity with Canada, and the action of the Ottawa Government appears to be without provocation. The United States statute allows a foreign vessel to unload the inward cargo, or with a part of her outward cargo she may proceed "from one port of the cargo.

The Electric Subway Commission and the ture—that is, a good telescope of 8 inches all bids. Now that the dispute between the end will be by and by. Last Friday all the will bear, under the best possible circum- Government and Mr. Roach has been set parties concerned became aware that the stances, a magnifying power of 800; one of tled there is apparently no reason for the repolice had received instructions to enforce 12 inches, of 1200, and so on. Applying jection of his bid if it should prove to be the law prohibiting the suspension of telethe same rule to this glass it would magnify lowest and best. The advertisement of graphic wires on the elevated railway an object 3600 times. This would enable the Secretary Whitney offering a premium of structures or elsewhere, agreeably to a de-

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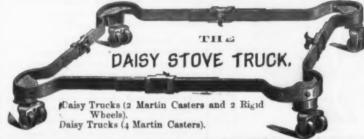
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Ground substantially uniform gauge on the toothed edge, and any gauge required on the back

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This is our original idea, and WE WANT TO SEE WHO WILL BE THE FIRST TO "STEAL OUR THUNDER' this time. Heretofore every sifter, however poor or cheap (and most of them were dear at any price), has copied our label, style, trademark and advertisements word for word, but we still live! There will be no advance in price. Dealers, "Don't be Clams," but order the new goods in advance, as we anticipate a rush. Get CLEAN, NICE goods and please your customers.

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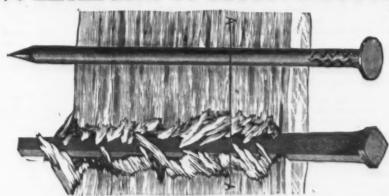
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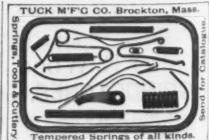
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Attorney, it is understood, is further investigating the subject, and arrests have becu

The United States mails to Mexico and the West Indies are now having quicker dispatch, the Ward and Alexander steamship managers volunteering to forward them at the old rate, namely, 5 cents per

About a dozen Bohemian glass-blowers, on their way to Pittsburgh, arrived at Castle Garden, where Walking Delegate Denny, of the Knights of Labor, charged that they were under an unlawful contract to labor. Commissioner Stephenson decided to the contrary and they were not detained.

President Diaz, of Mexico, in his annual message, says, with reference to silver, that Mexico must await the progress of events, and, touching upon the subject of the Tehuantepec Railroad, upon which work is suspended in consequence of the forfeiture of the concession to the late Edward Larned, he says arrangements have been made which give promise of ultimate success.

The Montreal shops of the Canadian Paific Railway last week turned out the first Consolidation locomotive engine built in the Dominion. Four in all are to be built, each weighing 51 1/2 tons, with a 19-inch cylinder and 22 inches stroke; diameter of driving wheel, 51 inches.

The master plumbers of Pittsburgh and Allegheny contemplate the formation of a tock company for the manufacture of gas ixtures on a rental basis, as landlords refuse to put in the fittings called for since the discovery of natural gas.

Local improvements in New York City are in progress on a considerable scale on public account. The Commissioners of the Sinking Fund have authorized the issue of \$500,000 for the construction of the Gansevoort market building, also \$2,000,000 for the Dock Commissioners. Plans for the Eighth Regiment Armory by Geo. B. Post have been approved which contemplate an expenditure of \$350,000, and those for the I wenty-second Regiment, by J. R. Thomas, architect, involve a sum not to exceed \$291,000. In addition to these improvements the work of the Subway Commission and the Aqueduct Commission will give employment to a large force of laborers for many nonths to come

The steamer Catskill, laden with passengers from up the Hudson, had a large hole stove in her planking by a Pennsylvania ferry-boat, and was saved from sinking by checking the ingress of water with bedding and mattresses. Canvas weighted at one edge always in readiness would be a good substitute for such a primitive device.

The master cutlers of Sheffield, England, had a gala day on the occasion of the installation of the master cutler elect, Geo. Francis Lockwood. In accordance with the ancient ceremonial of the Cutlers' Company there was a procession from Cutlers' Hall to the Town Hall, where the oaths were administered, and thence to the parish church, and in the evening 400 guests were hospitably entertained, the Lord Chief Justice of England and the Judge Advocate General joining in the oratory which closed the entertainment.

The freight contract recently signed by the Baltimore and Ohio Railroad Company transfer in New York harbor have an important bearing upon the future trade of this port. Among other details growing out of the contracts with the Jersey Central, floats are being constructed for the delivery and tranfer of loaded cars to all points in the harbor, as well as to and from Eastern roads running into New York, and barges and boats for the handling and storing of Denby filed a protest. grain and other freight over the Jersey Cenwhile the two years' freight-traff tract between the Baltimore and Ohio shall wn road to Staten Island. Meanwhile they will build an enormous grain elevator and freight warehouses at the terminus of the in 1885. Baltimore and Ohio at that point.

A general resumption of work in the vance in wages having been withdrawn.

The German Colonial Congress lately in to South Brazil and South Australia, but an African trade and colonization scheme, oupled with proposed subventions for the ot favored by the general public.

the original 13 States were welcomed on Friday by Governor Pattison, of Pennsylvania, in the State House in Philadelphia,

touching the questions at issue. The District efforts will all be directed toward the building up of this great country. We are part and parcel of a boundless nation, and we will do our parts toward making the country what our forefathers intended it should bethe glory of America and a blessing to the world." This centenary will occur September 17, 1887.

> The labor question was ably treated by Senator Edmunds in an address delivered at the Vermont State Fair. In the course of a long speech he said : "American legislation and the efforts of American lawmakerswho are really the people-ought to be directed to the utmost development of every variety of American production, and so to the improvement of the condition of the American laborer and the American employer of labor of every kind, by giving that labor full employment and adequate reward and to the employed ready and steady market. The constantly employed and well paid laborer will become himself a man of accumulating capital-the force of labor transposed into things. He will become a landholder; his wife and children-of the first of whom he ought to have one, and of the second many-will abide in his own house. He will see that the liberty of the laboring man is not only the liberty to strike,' as the phrase is, but that it is the equal liberty not to strike if he does not wish to, and the liberty to work on in peace and safety if he thinks it for his interest so to do, while others may choose, as they have a perfect right to do, not to work upon the terms proposed. He will learn that violence against the administration of law, or unlawful coercion of any kind exerted toward other workingmen or toward employers, are crimes of the gravest character against all labor and the welfare of laboring men, upon whom the consequences of such things always finally fall more heavily than on any other class of society.

The great Liverpool shipping brokers in their latest circular give a somber account of the condition of British shipbuilding interests. Builders and engineers, we are told, are very short of work, and the competition to secure the few good orders lately given out has been unusually severe, and prices more than ever rule favorably for the ship owner. A large number of secondhand steamers have recently been sold, but at very low prices, and many builders have new vessels left on their hands which they are anxious to dispose of. This surplus of steamers is in the face of the fact that new tonnage has fallen off greatly in comparison with previous years. On the Clyde, for example, during the last six months the shipping launched has been only 84,622 tons, while for the same time in 1883 it was 198,729 tons, in 1884 142,986 tons and last year 93,925 tons.

An adjourned conference of European diplomats will meet in Tokio in October for the revision of the Japanese commercial treaties. Although its deliberations are of high importance, they seem to have attracted little general attention, and none whatever through the Atlantic cable; but it is intimated by a Tokio correspondent of the London Times that there is more disposition, at least on the part of England and Germany, to treat Japan with the consideration she deserves, apparently in the expectation that more liberal views will meet with corresponding concessions advantageous to trade. Concerning the tariff there is said to be a substantial agreement, and final acand the arrangements making for freight tion is hoped for before the end of the present year.

Minister Denby, at Peking, reports to the State Department at Washington a number of recent outrages upon American missionaries in China, prompted by a spirit of retaliation growing out of troubles in the United States. In one instance property to the value of \$5000 was destroyed. Mr.

An official French report shows for the last eight months an increase in the value continue and until they can complete their of exports from France of £3.400,000, and a decrease in the value of imports of £1,-440,000, as compared with the same period

The Austrian Government, heeding the protests of scientific men against low-lying Western window-glass manufactories will sites for meteorological observatories, has take place October 1, the demand for an ad- just completed a structure at Salzburg, in the Austrian Alps, at an elevation of 10,000 feet. It will be telegraphically connected ession at Berlin appointed a permanent with the central office by wires crossing a ommittee to encourage German emigration glacier. The mountain has been chosen owing to its being a famous center of electrical disturbance, and the workmen who have been engaged in building the observaaintenance of steamship lines to Africa, is tory are said to have had numerous opportunities of watching the way in which lightning behaves as seen from above the clouds. The Governors or their representatives of For greater security the building has a copper roof.

A fleet of torpedo-boats was repulsed in a where the Declaration of Independence sham night attack upon the United States was signed 110 years ago, the object of the frigate Tennessee in Newport harbor. The gathering being to prepare for the centen- ship had been carefully fenced in by floating nial anniversary of the adoption of the booms made from the light yards and masts, Federal Constitution. In behalf of the Gov- which sufficed to turn aside the blows inernors, Gen. Fitz Hugh Lee, of Virginia, tended for her destruction. Sharpshooters, gave assurances respecting the future sta- together with gatling guns, fired blank cartbility and progress of the country. He ridges, and small defensive torpedoes atsaid: "I thank God that the question of tached to the ends of the booms were ex-State sovereignty has been settled and is ploded. The wild discharge of hot water now behind instead of before us. I can say from the hose was the main factor in the

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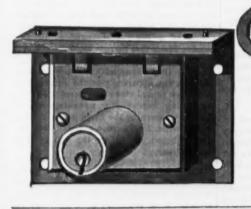
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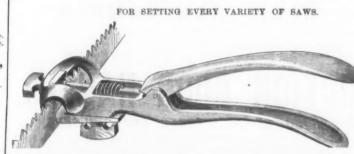
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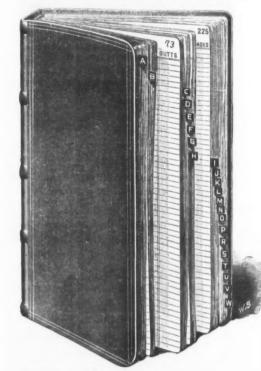
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A-Padlocks, Japanned, Wrought Iron, Bronzed Iron, brass and Jail.

B-Complete Comparative List of Corresponding Numbers of Padlocks, Mailory-Wheeler Co., Wm. Wilcox Mfg. Co., Rossell & Erwin Mfg. Co., Norwich Lock Mfg. Co., Nimick & Brittan Mfg. Co. Revised to July, 1886. A-Cabinet Locks, Drawer, Chest, Cupboard and Trunk Cabinet Keys.

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-	SA	V		
DISSTON'S NO. 3.	PANEL,	HAND 8	RIP.	W. M. & C. NO. 12
Length In	List.	Cost.	Job.	Sell.
16				
18				
20				
22			-	
26				
28		1	1	
DISSTON'S NO. 7.		HAND &	RIP.	W. M. & C. NO. 25.
Length In	List.	Cost.	Job.	Sell.
16				
18				
20				-
22				
26				
28				
30				
DISSTON'S NO. 8.	HAND	AND R	IP.	W. M. & C. NO. 26.
Length In.	List.	Cost.	Job.	Sell.
26				
28				
DISSTON'S NO. D 8.	HAND			W. M & C. NO. 27.
Length In.	List.	Cost.	Job.	Sell.
26				
28				
30				
DISSTON'S NO. 12.	HAND	AND R	IP.	
Length In.	List.	Cost.	Job.	Sell.
26				
28				
	OUF	BRANE).	
PA	NEL, H	AND AN	ND RIP.	
Length In.	List.	Cost.	Job.	Sell.
16				
18				
20				
22				
26				
28				
	L C. S.	PANEL	AND H	AND.
Length In.				Sell.
16	m1361	00311	3001	30111
18		_		-
20	-			
26				
				_
	COMBINA			0.11
Length In.	List.	Cost.	Jop.	Sell.
26				
DISSTON'S		BACK.		W. M. & C. NO. 5.
Length In.				Sell.
10	21011	50311	2001	30111
12				
14				
16				
10				

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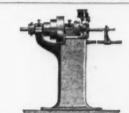


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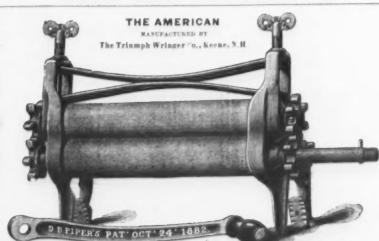
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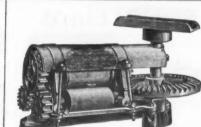
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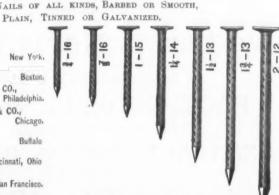
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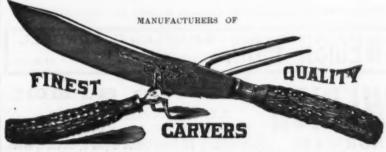
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Axes. Hunt's Kentucky and Yankee, \$\psi\$ dos. net\$7.00 William Mann. \$\psi\$ dos. net\$85.50 & 7.00 Favorite \$\psi\$ dos. net\$6.00 @ 7.00 Favorite \$\psi\$ dos. net	Round Head Iron dis 70&10 5	7 X
Augers and Auger Bits.—New List January 7 1880. Snell's Augers and Bits	Britannia, Boardman's dis 60 % Britannia, Parker's dis 60&10 % Tinned dis 10 %	S X S X
Snell's Augers and Bits	Springs Torrey dis 50 % 6 6 6 6 6 6 6 6 6	A nex
die 15 @ 90 \$	Coll No. 10 # gross nef. \$5.50@6.00 5 Other Standard Springs dis 50&10@60 \$ 1 Warner Door Springs, \$ aos. \$2.50. dis 40&10 @ 50 \$	ace
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Bevin Bros. Mik. Co., Italia Haid Heist dis. 7032 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Fire Fly \$3.00 gross. net Tacks Combination discounts Shoe Nails 4-8, and over, 556	hal
Boring Machines Upright, without AugersList, \$5.50 \ Angular, without AugersList. 6.75 \dis. 50 \$\$	Double Pointed Tacks	136
Angular, without AugersList. 6.70 Bolts. —Eastern Carriage Boits. new list. June 10, 1884	Genuine Oneida—Newhousedls 30 %	1 8
Stanley, wrought Shutter	Time One-time Newhouse list, First qual. dis 90&10&10 & 10 & 10 & 10 & 10 & 10 & 10	公司を対対が
Bracess	Wire. Bright or Annealed, No. 19 to 28 dis 56 5 5 Bright or Annealed, No. 19 to 28 dis 70 5	He tre
Spofford dis 50256350210 % American Ball dis 50210 % Amidon Improved dis 8026021035	Wire. Bright or Annealed, No. 0 to 18. dis 6565 \$ Bright or Annealed, No. 19 to 26. dis 70 \$ Bright or Annealed, No. 27 to 36. dis 70 \$ Coppered, 0 to 18. dis 65 \$ Tinned Broom Wire. dis 65 \$ Galvanised Barb Wire. 56 Fainted Barb Wire. 56 Galvanised Nos. 7 to 18. Market List, dis 60 \$ Wringers. Fer dos. F	HE KIN
Butts. Cast Fast Joint, Narrow		% To
Gatt Fast Joint, Narrow. dis 60 % Cast Fast Joint, Broad dis 60 % Cast Loose Joint. Narrow Cast Loose Joint. Narrow Cast Loose Joint. Broad dis Cast Acorn. Loose Pin. 70 @ 70 & 70 & 10 % Cast Mayer's Loose Joint dis 65 & 5 Wrought Loose Joint dis 65 & 5 Wrought Loose Joint dis 65 & 5 Wrought Narrow Fast dis 65 & 5 Wrought Narrow Fast dis 65 & 5 Wrought Narrow Fast dis 65 & 5	Per dos. 27.00 \$\pi\$ Per los No. 346. 27.00 \$\pi\$ Peerless No. 346. 31.50 \$\pi\$	8
Cast Acorn, Japanned Cast Mayer's Loose Joint Wrought Loose Pin. dis 65&5 \$	Universal, No. 14 30.00 © Universal, No. 14 31.50 © Universal, No. 14 31.50 © Universal, No. 14 31.50 © 150	Dia To
Wrought Table Hinges and Back Flaps. dls 65 % Wrought Loose Joint. dis. 65 % Wrought Narrow Fast. dls. 65 %	Universal, No. 1	5
Blind Butts	Noveity, for Common Tubs, No. 2 & 234, 10 in 27.00 converty, for Common Tubs, No. 3 & 234, 11 in 31.50	14
Parker dis. 75&2 6 Clark dis. 75&2 6 Clark dis. 70 60 104 Shepard dis. 70 60 10 60 60 Luli & Porter dis. 80 60 60 Huffer's dis. 50 60 60	Calvanized Nos. 7 to 18. Market List, dis. 90 to 19	334 434 544
Casters.—Bed (new list July 1, 1880) Platedis 60 @ 60&5 1		M: M: M:
Chains, German Halter and Coll, list June, 1884 Galvanized Pump	Merchant Iron.	-
3-16 4 5-16 5 7-16 3 Chisels.—Socket Framing	TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 p cent. for cash if remitted within 10 days from date of invoice.	150
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Door Hangers.—Cronk Barn Door HangersNo. 4 \$12.00; No. 5, \$14.00; No. 6, \$18.,00.dls. 50&5@50&10; American Parlor Door Hanger\$6.00; dis 20&10;		146
Drawing Knives. Hart Mfg. Co.'s		TI
		13
Files	\$ \\ 4 to 1\text{4 inch2.7\text{6 inch2.7\text{6 inch3.5\text{6 inch	15
Fluting Machines. Eagle = 34 in. roll. each, \$2.15 dis 35 Eagle = 34 in. roll. each, 2.86 dis 35 Crown = 44 in. roll. each, 3.50 Crown = 6 in. roll. each, 4.60 dis 35 Crown = 6 in. roll. each, 4.60 dis 35 Geneva Fluter. dis 25 Favorite com. Fluter and Sad Iron. # dos., \$10.50 ne	% to 1½ by 5-16 to 34 inch	13
Crown—6 In. roll each, 4.00 dts 35 Crown—8 in. roll each, 6.50 Geneva Fluter dis 25	74 inch, Nos. 13 & 14 3.24 4 inch, Nos. 11 & 12 3.34 5 inch, Nos. 12 & 12 3.34	1
	1 to 1% by 14 & 5-16 2.36	FERES
Burnished	11/4 to 6 by 1/4 to 3-162.5# % & 11-16 by 1/4 to 3-16.8.2# 1/4 to 6 by Nos. 11 & 12.2.5# % & 11-16 by 1/4 to 3-16.8.2# 1/4 to 1/4 by 1/4 to 3-16.8.2# 1/4 to 1/4 by 1/4 to 3-16.8.2#	36 36 az
Yerkes & Plumb's, new list	1½ to 6 by ½ to 3-10. 2.5e ½ to 1.16 by ½ to 3-10. 2.2e ½ to 6 by Nos. 11 & 12.2.2e ½ & 11.16 by Nos. 11. 12.3.3e ½ to 15 by ½ to 3-16. 2.2e ½ & 2.11.16 by Nos. 11. 12.3.3e ½ to 15 by Nos. 11 & 12.2.7e ½ & 2.16 by Nos. 11. 12.3.3e ½ to 15 by ½ to 3-16. 2.5e ½ & 2.16 by Nos. 11. 12.3.3e ½ to 15 by ½ to 3-16. 2.5e ½ to 15 by ½ to 3-16. 2.5e ½ to 15 by ½ to 3-16. 2.5e ½ to 15 by Nos. 11. 12.3.3e ½ to 15 by Nos. 11. 12.3.3e ½ to 15 by Nos. 11. 12.3.3e ½ to 15 by Nos. 11. 12.3.5e ½	56
Handles. Dission Loop Handles Cross-Cut20# pair ne Boynton Loop Handles Cross-Cut30# pair ne	114 to 4, Nos. 18, 14, 15, 2.8¢ 14, Nos. 19 and 203.7¢	200
Hatchets. Yerkes & Plumb, new list	1 14 to 2, No. 21 3.0¢ 4, No. 22 3 9¢ 1 14 to 2, No. 21 3.0¢ 11.16, Nos. 18, 14 & 15.3.7¢ 1 14 to 2, No. 21 3.2¢ 11.16, Nos. 16, 17 & 18.3.8¢ 11.16, Nos. 16, 17 & 18.3.8¢	14 18 18 R
Hunt	15-16, 1 & 136, Nos. 12, 14 & 15	RDD
Walton Straw Knives. # do /.net 17.0 Gem Hay Knife # dos \$12.50@13.5 Hinges.	0 15-16, 1 & 116, Nos. 19 & Nos. 19 and 20. 4.14	RH
Strap and T	15-16, 1 & 114, No. 22 3.4¢ & No. 23 4.4¢ & No. 23 4.4¢ & No. 13, 14 and 15, 3.2¢ 9-16, Nos. 13, 14 & 15, 4.4¢ 16, Nos. 16, 17 and 18, 3.3¢ 9-16, Nos. 18, 17 and 18, 18 and	P
Pol'ed and P't'd & Blued & P't'd.31 28 26 25 24 23 dia 25&10 (https://distance.com/distance/d	6 No. 21	P
Pol'ed & P't'd. 24 22 21 20 19 dis 25&10 Saranac	13-16, Nos. 19, 17 & 18.3.5¢ 16 inch, Nos. 18, 14, 15.4.5¢ 13-16, Nos. 19 and 203.6¢ 16 inch, Nos. 16, 17, 18.4.4¢ 13.16, No. 21	A Si G
Gem Hay Killi Ringsen T	13.16, No. 29. 3.86 3 inch, No. 21 4.76 4 inch, No. 21 4.76 5 4 inch, No. 23 4.86 5 inch, No. 23 4.86	GCR
# dos. 45.00 5.50 6.50 7.50 8.50 10.00 12.50 dls 60 No. 57 58 59 60 61 62 63 dls 60 8.00 10.00 12.50 dls 60 8.00 10.00 10.00 12.50 dls 60 8.00 12.50 d	. lighter than the lightest indicated	
Buckeye	Barrel Hoons	1 25
Guards of extra. Laws Mowers.—Pennsylvania	### ### ##############################	S
Tubular, No. 0, 8t.75-27.00; No. 1, \$8.2548.50 \$\psi\$ dos. ns Gards 405 extra. Law Mowers.—Pennsylvania. Philadelphia Excelsior Continental Quaker City Lawn and Garden Pumps. Holland Patent. Holland Patent. Holland Patent.	Extras for cutting to length all preceding Iron, including Tire	8
Holland Patent	No. 9 & heavier, 3.8¢; Plow Slabs, 3.0¢ Plow Wings, 3.3¢ ##################################	8 8
Mattocks. Long and Short Cutternew list, 60&10 Pennavivania Patters	### Sheet From Common. Common. Charconl. Juniata. Nos. 10 to 14	8
Pennavivania Fatters. Moinasses (inters. Measuring Fauceta.dis. 30&10 Enterprise Mfr. Co.'s Measuring Fauceta.dis. 30&10 Enterprise Mfr. Co.'s Measuring Fauceta.dis. 70&10 Lincoin's Gates	Nos. 22 to 24	F
Cork Lined Cocks	All sheets No. 18 and lighter, over 30 inches wide,	F
	Wood's Pulent Planished Sheet, 1st quality (A)19¢ 2d quality (B)9¢ American Galvanized Sheets.	10.0
American die 40 Stuffers die 40 Enterprise Stuffers dis 30	(Sobo C. H. B.) Brand. Patent Leveled: Nos. 14 to 30. 12¢ No. 27. 15¢ Nos. 21 to 34. 13¢ No. 28. 16¢ Nos. 25 and 26. 14¢ No. 39. 18¢	F
Parers, apple and Peach. Ideal Apple Parers	Nos. 25 and 26	1.1
Goodell Lightning Apple Farers per doz \$5.0 din 10 Monarch Peach Farers per doz \$15.00 din 10 Planes Sandusky Fool Co dis 2042	Coal Screen tron. 134 by % by 5-1025# 1 by % by 5-16	E
Ogonts. dis. 25&2 Ohio and Auburn. dis. 20&1 Balley (8. R. & L. Co.). dis. 20&10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	E
Butcher's	# # # # # # # # # # # # # # # # # # #	B
Parers, apple and Peach. Ideal Apple Parers	16 16 2.34 30 2 2.34 30 2 2.34 30 2 2.34 30 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	B
Lamont Combination	00 3% by % and % Spikes for 20 and 28 % Rail	-
tules_setanley Boxwood. dis. 80&5cg00kil) Stanley Ivory dis. 50 &65ck1 Steelyards_Hart's Pattern dis. 50 &65ck1 Steelyards_Hart's Pattern dis. 50 &65ck1 Lbs 60 100 150 30.0 250 American Pattern dis. 40k10a50 Per dos. 85.00 10.25 13.75 15.60 16.75 19. Lbs 50 100 150 260 250 30 Scale Beams 60 60c 250 250 250 250	Flat Rails.—Punched and Countersunk.	
Lbs 60 100 150 306 250 309 American Pattern	Junista Nail Rods, 6.0s; Norway Nail Hods, 7.5s.	0 0
	Junista Nail Bods, 6.04; Norway Nail Hods, 7.54. Guard Iron, 1923/124 and 1623/125. Guard Iron, 1923/124 and 1623/125. Drag Bars	d
Steel and Iron.dis. 80&10 \$; full cases dis	S Naila.	M
Disston's Try Squares. Stanley. Disston's Try Squares. dis 45&10 "cythes. Golden Clipper, Damascus Blade, Boxed and Sharpened. Clipper So. 10, Bronsed Blade, Boxed and Sharpened. dos 45.70 "a ws. Disston's Hand, Panel and Rip. dis 2042. Disston's Circular. dis 45&10 Urston's Circular.	Tool Steel. Classification Adopted April 18, 1898, Steel Association of United States.	P
ehed	nound, square and octagon. Round, square and octagon. Solvent and octagon. Solvent and octagon. Solvent and octagon.	0
Cross-Cut No. 2, Plain Tooth	3 2 4 to 3 ext. 1.0¢ 73 to 8 3.5¢ 3-16 5.0¢ 3 4 to 4 1.0¢ 9-16 to 4 0.5¢ 5-32 10.0¢	8
hovels and Spades. Oliver Ames & Sons, new list. dis 50 a 10 @60 % 6 % 6 % 6 % 6 % 6 % 6 % 6 % 6 % 6 %	5% to 8 2.5¢ 5-16 and 11-33 2.0¢ FLATS. 2 to 50-16 inches wide x 2 to % inches thickbase, 8.0¢	

	T	H	E	I	R	0	N	A	. (
9	ad Irons.—4 to 10 b				List	of Ex	tras		
0	ad Irons, to 10 b. b 2,3562.50e Mrs. Potts' Patent dis 35640	8 x 6 8 x 5 8 x 4	4	2.06	List 6 x 16 6 x 16 6 x 16 5 x 4. 5 x 3.		1.0¢	56 x 7-1 56 x 56, 56 x 5-1 56 x 54, 56 x 3-1	6
		8 x 3	******		5 x 3. 5 x 3. 5 x 3. 5 x 3. 5 x 3. 4 x 3. 4 x 3.	io 54	1.0¢ 1.0¢ 1.0¢	% X %.	6
8	Hindostan slips # 8 8 6 5 crews.—Parker list (new list). Flat Head Iron dis 75 8 16 75 8	8 x 1/6. 7 x 6. 7 x 5.		3.0¢ 2.5¢ 2.0¢	4 X 3 4 X 2 4 X 14 4 X 14	to %.	1.0¢ 1.0¢ 1.0¢		
100	Round Head Brass. dis 70 % Round Head Iron. dis 70 % Round Head Iron. dis 70 % Round Head Iron. dis 50 & 10 @ 60 % Plated. dis 50 & 10 @ 60 %	7 x 3. 7 x 2 t 7 x 36. 7 x 36.	(to %	1.5¢ 1.0¢ 1.0¢ 1.0¢	4 x 1/8 3 x 1/4 3 x 1/4	to 54	1.0¢ 1.0¢ 1.0¢	% x ¼. % x 3-1 % x ½. 5-16 x	6
,	Round Read iron	7 x 16 6 x 5. 6 x 4. 6 x 3.		2.0¢ 2.0¢ 1.5¢ 1.5¢	3 x 16 2 to 5 2 to 5	X	2.0¢ 1.0¢ 1.5¢ 2.0¢	20 x 23. 16 x 34. 26 x 54. 26 x 54. 26 x 34. 26 x 34. 27 x 34. 28 x 34. 28 x 34. 29 x 34. 20 x 34. 21 6 x 34. 22 x 34. 23 x 34. 24 x 34. 24 x 34. 25 x 34. 26 x 34. 27 x 34. 28 x 34. 28 x 34. 29 x 34. 20 x 34.	3-16
32	Springs. Torrey dis 50 % Gem No. 3 medium Japanned \$2.00 Gem No. 2 medium Japanned 2.75 Coll No. 10 % gross net \$5.50@6.00	6 x 2 t All i next i specif	ied ien	gths,	56E 1	es wil n list.	1.0¢ l be c Cutt	3-16 x harged ing to m r 24-inc	at pult
	Warner Door Springs	% to S	CARREST CO.	COME	Luc.r.				
-0.00	Other Standard Spring Hingesdis 25&10@40 \$ Stocks and Diesdis 30@30&10 t stove PolishGemF gross, \$4.50, dis 10 \$ Dixon	3% to 4% to 0% to % to	4 in 5 in 6 in 11-16 in	ex	tra, 0. tra, 1. tra, 1. tra, 0.	5¢ 5. 0¢ 14 5¢ 3.	and s and s 16 inc	M. AND SQU 6 in 111-32 in -32 he list. teel cla lengthe long. I locial co	ext ext
	Fire Fly \$3.00 gross. net Facks. Combination discounts Shoe Nalls—4-8, and over, 536. {10 \$6 Shoe Nalls—3%-8, and under 76 {10 \$6}	half cutti	agons, the exi ng to d for a	ras o multi nythi	ktra to f the lples o	Flat Flat or spe er 24 i	hout t Tool & etfied nches	he list. Iteel cla length long. I	Fla ssif i, 1
	IIII. Ulleida - Newhouse list. First oual die 80910810 4	1% to	9.10.3	NO 4	REALIR	e to M	110 170	C	bu
	Vises.—Solid Box. Trenton new list, dis 502 102 10 5 Wrenches.—Agricultural. dis 802 802 5 6 Coes Genuine. dis 902 102 10 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	% to % to % to	3 in. x 3 in. x 3 in. x 56 in. x	No. 8 No. 1 No. 1 No.	gauge 1 gaug 7 gaug 10 gau	to 10 re to 1 ge to 2 ge to	gauge 6 gaug 0 gaug 16 gau	re inc to inc te inc te inc ge inc ge inc ge inc ge inc se inc	ex ex ex
	Coes' Mechanics,' Mail. Bar	% to % to Cut tra	% in. x % in. x to len and u	No. 1 No. 1 gth, 2 oder.	17 gau 21 gau 24 inch accord	ge to ge to les an ling to	20 gau 24 gau d over 0 spec	ge inc ge inc life per lal conti	ex ex po
	Wire. Bright or Annealed, No. 0 to 18	% to % to % o	9-16 in 7-16 in	hese	base, i xtra, (xtra, (1.0¢ 5 1.2¢ 5	-16 in.		.ex
	Galvanized. Nos. 7 to 18Market List, dis	0.83	1 gaug	e (for f; and lo. 26	best lead	qual	of ex	L GRAD ase, 9.00 tra for o	i. 0
	Galantized	1			CORTOGER	ILE CI	Mame 56 to 62 to	ks. ter. 60 inch 64 inch 70 inch	
	Universal. No. 1	50 1	The Custon	MARCH TO	48 EX 63	upe	H-ILC	arth	MEG
	Excelsior, for Stationary Tubs, No. 2 & 224, 10 in 27.00 Excelsior, for Stationary Tubs, No. E. 10-inch 36.00 Excelsior, for Stationary Tubs, No. E. 10-inch 36.00 Excelsior, for Stationary Tubs, No. F. 11-inch 40.50		N N	ACTES	NERV I	CHEST	OF AMES	1-16 inch 1-16 inch 1-16 inch 1-32 inch 1-32 inch	
	Excelsior, with Folding Bench, No. A. 10-inch 45.00	Maci Maci Maci Maci	o o incl o o incl hine cu hine cu	nes in tting tting	to spe	0.5¢ 1.0¢ cifled	lengt lengt	9-32 inc hs abov hs, 12 to	b in e 24
-	PITTSBURGH. Merchant Iron. Terms—Note of accompanie of the law o	account about	each s	to collective.	ontrac Shear or cut	t, but ing or ting.	not le	hs abov hs, 12 to hs, less t ss than g, one-h	har 0.6
1	TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 seent, for cash if remitted within 10 days from date of invoice. For Sustantian and discount of 2 seent for cash if remitted within 10 days from date of the form of the	134 to 134 to 134 to	n. and n. and n. and	wider wider wider	MAC: X 36 1 X 8-1	to 1 in to 5-16 6 and	thick in th	ick thick thick thick ick hick thick thick	t
1	For fluctuations and discounts on card rates see weekly Pittsburgh Trade Report. The following are card rates.	54 11 54 11 54 11	n. to 11 n. to 11 n. to 11	wider in. 1	1 16 to 1 3-16 1 16 an	1 in, t and 7- d 5-32	hick. 32 in. in. th	thick thick ick	ez
1	Flat Bar. 11/4 to 4 by 3/4 to 1 2.04 11/4 on 11/4 by 3/4 to 3/4 . 2.14 14 to 6 by 3/4 to 1 2.14 1 and 11/4 by 3/4 to 3/4 . 2.24 13/4 to 6 by 11/4 to 11/4 . 2.44 3/4 3/4 and 3/4 by 3/4 to 3/4 . 2.44	36 11 36 11 36 11	n. to % n. to % n. to 13 n. to 23	in. x in. x in. x	3-16 a 3-16 a 3-16 a 1-16	nd 7.3 15-32 1 and 3-	nick 2 in. t in. thi 32 in.	hick ck thick	ez
1	Rounds and squares, 1 10 114 12 13 14 14 15 15 16 16 16 16 16 16	Min Ex	ch and	wide me a	Flat	to 1 fr Machi	neb th	ick	e
1	3% to 4	Thre		t the	list 0.: ire,	el, sq	uane re tha	EDGES. h for sai	
1	14 to 14 inch	Ea	LITAN NO	me m	der a	% to	EXT	thick .	
1	% to 11/6 by 5-16 to 3/6 inch	156 t			s Maci	to hinery to str	Extr	thick	
1	74 Inch, Nos. 13 & 143.2 f & Inch, Nos. 11 & 128.3 f & Inch, Nos. 11 & Inc	1 an 1 to	d 116 ir 3 in. x	NO. 5	o. 1 ca gauge 8 gaug	uge to ; e to 7 e to 1 ge to	o 4 gau gauge 0 gaug	ne ige inc. inc e inc ge inc	e.
	3½ to 6 by ½ & 5-16254 ¼ to ½ by ½ & 5-16254 ½ to 1½ by ½ & 5-16254 ½ k½ by ½ & 5-16304 ½ to 1½ by ½ & 5-16304 ½ k½ by ½ & 5-16304 ½ to 6 by ½ to 3-16354 ½ k3 by ½ & 5-16304 ½ to 6 by ½ to 3-16354 ½ k3 by ½ k3 b	34 50 36 50	3 in. 3 56 in. 56 in.	No.	17 gau 10 gau 17 gau 21 gau	ge to: uge to uge to	20 gau 20 gau 20 gau 24 gau	ige inc ge inc ge inc ge inc ge inc uge inc uge inc to leug and ande	. e:
-	1½ to 6 by ½ to 3-16. 2.5 \$\frac{1}{2}\$\$ \$\frac{11.6}{2}\$\$ by ½ to 3-16. 2.2 \$\frac{1}{2}\$\$ \$\fr				TO CLETTE	D. Grenovi	180 cm comm		
	96 & 13-16 by Nos. 11, 12, 3.0¢ 34 in. by Nos. 11 & 12, 3.0¢ 36 in. by Nos. 10 and 20	A 20.00	9-16 in 9-16 in 7-16 in	nes.	extra, extra, cu	2.9¢ 0.2¢ 0.5¢ TLERY	5-16 in	ich	. e:
-	14 to 2, No. 19 3.0¢ 1, No. 22 3.9 1, 14 to 2, No. 20 3.1¢ 11.16, Nos. 13, 14 & 15.37, 14 to 2, No. 23 3.2¢ 11.16, Nos. 16, 17 & 18.38, 11.16, Nos. 19 and 90.	14 g 15, 1 18 a Rou	auge to 16 and 19 and 19 and 19	hick s 17 gs gauge diam					
-	1\(\) to 4, Nos. 18, 14, 15, 2.9\(\) 1\(\) to 2, Nos. 16, 17, 18, 2.9\(\) 1\(\) to 2, Nos. 19, 14, 15, 2.9\(\) 1\(\) to 2, No. 19, 3.0\(\) 1\(\) to 2, No. 19, 3.0\(\) 1\(\) to 2, No. 21, 3.1\(\) 1\(\) to 2, No. 21, 3.2\(\) 1\(\) 1\(\) to 2, No. 21, 3.2\(\) 1\(\) 1\(\) to 2, No. 21, 3.2\(\) 1\(\) 1\(\) to 2, No. 21, 3.2\(\) 1\(\) 1\(\) to 2, No. 21, 3.2\(\) 1\(\) 1\(\) to 2, No. 21, 3.2\(\) 1\(\) 1\(\) 5, 1\(\) 2\(\) 1\	Rou Dou Dou For	nds, sr ble ber ble ber k Steel	rel, 14 rel, th Open	gaug inner inner n-Hea	e and than than	heavi 14 gat Besse	e as Ma	chi
	90	Hoe Aug	re Steel	One	n. Hoa	web ow	Donne	mer ner lesseme emer ounds ent.	
-	56 Nos. 16, 17 and 18, 3.79 9.16, Nos. 13, 14 & 15, 4.1 6, Nos. 19 and 20 3.49 9.16, Nos. 19 and 20 4.3 8, No. 21 3.59 9.16, Nos. 19 and 20 4.3 6, No. 22 5.6 9.16, No. 22 5.6 9.16 No. 22 5.6 No. 22 5.6 9.16	Sha No pou	pes sul o freigi nds of		in on	e ship	ment.	ade on	less
-	5. S. 18 and 20. 3.4 s	Scy Gra	e Billies the Bac in Dril	k Ste	el	S	Thras Thras Rolle	her Stee her Tee i Ham'r	th
	Nos. 16, 17 and 18. 3.6¢ 36 inch, No. 28 4.8	Cut Roll		ulter Four	Blank	s, cut		pered unched. nt. disco	
	lighter than the lightest indicated. 1-10# \$\Pi\$ extra will be charged for cutting Hoops to specified lengths.	She	Il Steel	Le in	Pi	ate	Stee		004
	9 to 11 %, # set of 6 hoops. 3.0 B and less than 9 %, # set of 6 hoops. 3.1 Less than — % # set of 6 hoops. 3.1	te She	Il Steel	, 8 g	auge	and S	gaug	e thick	, 50
	cluding Tire	She	0,000 pc	unds l Pla	tensil	e stre	ngth. hes to xtra o	100 in n each t	che hich
-	Nos. 10 to 14	She	Il Stee	Head	ds, 96	inche	xtra o s dian xtra o	n each t neter to n each t	100 bic
-	Nos. 15 to 17. 3.3# 4.8# 6.4 Nos. 18 to 21. 3.6# 6.1# 6.6 Nos. 22 to 24. 3.5# 6.8# 6.8	Fla 60 Fla	nge St 0,000 pc nge St	eel, seel, 3	inch tensi 16 inc	thick le stre h thic	tra on and ngth. k, 50,0	heavier	11ck 1, 5 e ,000
-	All sheets No. 16 and lighter, over 30 inches wide not less than 2.10¢ extra.							ge thick	
-	Wood's Paient Planished Sheet. Ist quality (A)	Fla	nge Ste	el Pi	ates, 1	00 ine	ches t	o 105 in n each t	che
	(Sobo C. H. B.) Brand. Patent Leveled: Nos. 14 to 90 12¢ No. 27 15 Nos. 21 to 24 13¢ No. 28 16 Nos. 25 and 26 14¢ No. 29 18 00. 40 24 & 648count.	Flo di	mmete	Conject	4 254.00	5 inch	es dis xtra o	meter to n each t	hic
0000	Coal Screen from, 1% by % by 5-182.5¢ 1 by % by 8-163.0	Bei	t Bolle 70,000 t Bolle ounds	pour r Ste ensil	el, % i el, 3-1 e strei	nch ti asile s 6 incl agth	trengt h thic	s diame on each and bea h k, 50,00 gauge t h	0 to
-	254 3.354 and 4 inch 2.8s 114 by 1, for Pl. Hand .2.3s 114, 184, 2 and 234 ' 2.8s 114 by 1, for Pl. Hand .2.3s 114 hob 2.9s 115 by 14	Ros	t Bolle	r Sizon	al Plat	es 90:	inches	to 100 to	neh
-			t Boile	r Stee	el Hes	ates,	i00 in xtra o	n each to n each t es diam	100
000	8 h to the yard	Bes	t Boile	r Stee	Hea	ds. 10	inch	n each t es diam on each	eter
-	Fair Russ, -Function and Countersum.		Intire	y ne	w, be	ings		HE ed from	
- CALL	1kt to 2 by 1s to 2s Inch. 2.5 1kt by 1st and 7.16 inch. 2.7 1kt by 1st and 7.16 inch. 2.7 1kt by 2s, 7.16 and 2s Inch. 2.0 Junista Nail Rode, 6.0s; Norway Nail slode, 7.5s. 3.5 Guard Iron, taxkays and taxkays. 3.5	one cas	plat t-iron	e of	stee ks in	ever	y pas	erior t	r,
	Juniata Nail Bods, 6.04; Norway Nail Hods, 7.54. Guard Iron, \$425(25) and \$425(25). Guard Iron \$425(25) fand \$425(25). Drag Bars. 2.84 Cyl. & Landside Iron. 2.7 Dropper Bars 3.84 Plow Beam Iron. 2.5		These	sin	iks,	being	z m	ade c	of
-	See Pittsburgh Trade Report. Tool Steel. Classification Adopted April 18, 1996, Steel Association	hee	ought it, col	d, or	, wil	caus	bree where	k from	n
	Classification Adopted April 13, 1886, Steel Association of United States. ROUND, SQUARE AND OCTAGON. 54 to 2base, 8.0¢ 54 to 7	OF	reedo	nized m fi	l, as rom	desir brea	ed, a	pair te t price consid	1.
-	\$\\ \begin{array}{cccccccccccccccccccccccccccccccccccc	fro		18 L	han			mad	
-	FLATS. 2 to 9-16 inches wide x 2 to % inches thickbase, 8.0	1 7	THE	K	ILE	BOL	RI	IE 8	k ,

	HE IRON AGE	
· · · · · · · · · · · · · · · · · · ·	List of Extrus.	POR SET FEE E FSSSFFFF SSSSSSSSSSSSSSSSSSSS
dis2 % cash in 10 days. Aftern	An and adder, according to special contract. ROUND AND SQUARE CRUCBLE SPRING STEEL. 10 1-16 inextra, 1.0¢ 10 1-16 inextra, 0.0¢ 10 1-16 inextra, 0.0¢ 10 1-16 inextra, 0.0¢ 11 1-16 inextra, 0.0¢ 12 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
nt of rd et.	diachine cutting to specified lengths above 24 in. 0.2c Machine cutting to specified lengths, 12 to 24 in. 0.4c Machine cutting to specified lengths, 12 to 24 in. 0.4c Machine cutting to specified lengths, 1ess than 12 in. according to contract, but not less than 0.6c extra on each size. Shearing or sawing, one-half of the above extras for cutting. MACHINERY FLATS. 124 in. and wider x 34 to 5-16 in. thick	
.5¢ .0¢ .0¢ .0¢	Throughout the list 0.2¢ more than for same sizes of Round Edge Tire. TOE-CALK STEEL. 154 Inches and wider x ½ to 1 inch thick base 2.7¢ Extras same as Machinery Extras. 154 Inches and wider x ½ to 1 inch thick base, 2.8¢ Extras same as Machinery Extras. 154 Inches and wider x ½ to 1 inch thick base, 2.8¢ Extras same as Machinery Extras. 154 Inches and wider x ½ to 1 inch thick base, 2.8¢ 154 Inches and wider x ½ to 1 inches like base, 2.8¢ 155 Inches and wider x ½ to 1 inches base, 2.8¢ 155 Inches and 155 Inches base, 2.9¢ 156 Inches base, 2.9¢ 157 Inches base, 2.9¢ 158 Inches base, 2.9¢ 159 Inches base, 2.9¢ 150 Inches	1
20 56 66 68 96 70 80 10 10 10 10 10 10 10 10 10 10 10 10 10	\$ to \$ in. x No. 17 gauge to 20 gauge 1t. extra. 5.09 \$ to \$ in. x No. 21 gauge to 24 gauge 1t. extra. 5.09 \$ to \$ in. x No. 21 gauge to 24 gauge 1t. extra. 5.09 \$ to \$ in. x No. 21 gauge to 24 gauge 1t. extra. 5.09 \$ to \$ in. \$	-
.2# .3# .4# .5# .6# .6# .6# .6# .8# .8# .8# .8#	Axle Billets	****
1.0g 1.1g 1.2g 2- 1.0g 1.3g 1.3g 1.3g 7.0g 7.0g 7.0g	tensile strength	
	Flange Steel Plates, 100 inches to 105 inches wide.	1

Heads, when not in complete Boiler sets, to be 566 er pound extra on each above grade, thickness and ize. No Steel to be sold as Marine Boiler Steel except leat Boiler grade. Tank Steel, not stamped, 347 per ound less than Shell Steel, subject to same classification. SPRING CAST STEEL.

Spiral, Taper, cut to lengths.

Solid Safe Cast Steel.

After and Five Ply Cast Steel.

AGRICULTURAL IMPLEMENT CAST STEEL.

FORK & RAKE, Crucible. 4 | Corn Stalk Cutter, bev. 4¢
Horse Rake Steel. cut to lengths. Crucible. 5¢
Hoe, Crucible. 5¢
Cruc. Plow St'I in Slabs. 4¢

Cruc. Plow St'I in Slabs. 4¢ Rolls and Castings. Molis and Castings.

Permane and Ploor Plates.

Sand Rolls over 12 inches diameter

Sand Rolls 12 inches diameter and under.

Roll Pinions over 12 inches diameter and under.

Roll Pinions 12 inches diameter and under.

Roll service of the service Spurand rever wheels, small.

356

Wheels, small.

356

Pulleys, over 30 focus

46

Pulleys, over 30 focus

47

Pulleys, over 30 focus

48

Engine Castings, light.

48

Engine Bit, Japanes & Co.

48

Engine Bit, Lippincott.

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Engine Bit, Japincott.

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Engine B THE

Lead is made.

Window Ginss.

Discount, 75

Single Strength: 75

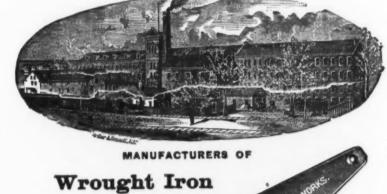
Current, \$\Phi\$ box of 50 feet.

Single Strength.

United	Sizes.	A.a.	Α.	B.	C.
25	6 x 8 to 10 x 15	88.75	88.00	\$7.50	87.00
39	11 x 14 to 15 x 24	9.25	8.50	8.00	7.25
48	16 x 24 to 20 x 28	10,75	9.75	8.75	7 7 5
54	15 x 34 to 24 x 30	12.25	10.75	9,00	** *
60	26 x 28 to 24 x 36,	13.00	11.50	9.75	
70	26 x 36 to 26 x 44	14,50	13.25	10.75	***
80	26 x 46 to 30 x 50	15,00	14.00	11.25	
84	30 x 52 to 30 x 54			1111	
90	30 x 56 to 34 x 56			****	****
94	34 x 58 to 34 x 60				***
100	36 x 60 to 40 x 60,			****	****
	Double Strength.				
25	6 x 8 to 10 x 15	13.25	12.25	11.25	10.5
34	41 x 14 to 15 x 24	14.50	13.25	12.50	11.2
48	16 x 24 to 20 x 28	17.25	15,75	14.00	
54	15 x 34 to 24 x 30	19.75	17.25	14.50	
60	26 x 28 to 24 x 36	21.00	18.50	15.75	***
70	26 x 36 to 26 x 44	23.25	21.25	17.25	
80	26 x 46 to 30 x 50	24.00	22.50	18.00	
84	30 x 52 to 30 x 54	25.75	23.25	19.25	
80	30 x 56 to 34 x 56	27.75	25,00	21.75	
94	35 x 58 to 34 x 60	29,25	27.75	24.00	***
100	S6 x 60 to 40 x 60,	33.25	30,00	27.75	*85

inches in length, and not making more than \$1 united inches, will be charged in the \$4 united inches bracket. Hubbard, & Co.'s Goods.

STANLEY WORKS



BUTTS, HINGES

DOOR

BOLTS

FACTORIES: New Britain, Connecticut. WAREHOUSE:

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For melting Steel, Brass and other metals. Black Lead Stopper, &c., for Bessemer Steel Makers. Also manufacturer of Superior Quality Hammered Charcoal Iron of different sizes and shapes.

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We call the attention of the Trade to our "Diamond" and "Circle" brand Steel Carpet Tacks. "Diamond" brand, Uniform Weights; "Circle" brand, Double Uniform Weights; 6. 3, "c.rs. 14, 16 ounce "Diamond" brand, list, Blued, 1756; Tinned, 5.co. "Circle" brand, list, Blued, 756; Tinned, 5.co. Warranted equal to swedes to all essentials.



THE COLUMBUS WROUGHT STEEL FOR BUTLER'S PANTRY AND KITCHES. (Pat. April 12, 1881.) Entirely new, being stamped from e plate of steel and superior to st-iron sinks in every particular,



SINK, AGENTS W. & B. DOUGLAS, Middletown, Ct. and N. Y. City. Agents for New England, N. Y. City and Export. Jas. B. Clow & Son. Chicago III. L. M. Rewart Myo. Co., St. Louis, Mc. Bailey, Farrell & Co., Filiso'n, Pa. McLeyola, Good & Hustington, C. A. Bleiseno, Philadelphia Pa. Sidney Seepand & Co. Buffalo, N. Y. Kennedy, Spactoling & Co., Syracuse, N. Y. Gleason & Bailey Myo. Co., James Robertson & Co., Baltimore, Happer, Extroduct & Co., Md. Los Angeles, Cs. Goulds & Austin, Chicago, III. Holbrook, Merrill & Streen, C. Columbus Ohio.

THE KILBOURNE & JACOBS MFC. CO., Sole Manufacturers, COLUMBUS OHIO.

LOCKS. ed Oct. 7th, 1879. PRICES SEE AGE, AUGUST 5t SASH JRGLAR-PROOF IRON N B



No. 210, Ornamental Iron, Iron Knob, fine finish,
Etruscan Bronze.

No. 211, Ornamental Iron, Iron Knob, fine finish,
Olympian Bronze.

No. 212, Ornamental Iron, Iron Knob, fine finish,
Fompeil Bronze.

No. 213, Ornamental Iron, Iron Knob, fine finish,
Fompeil Bronze.

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Of Every Description,
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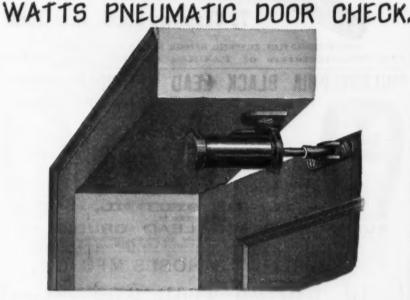
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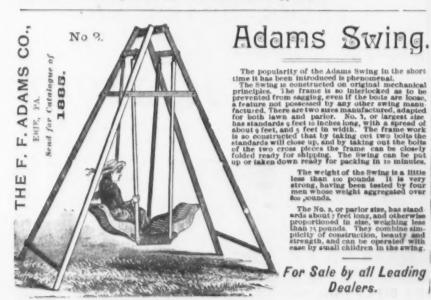
UNION BRIDGE COMPANY, 18 Broadway, New York.

WATTS + MANUFACTURING + CO 480 PEARL STREET, NEW YORK,

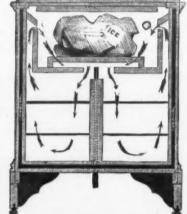


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It can be applied to either side of the Door or on the casing overhead. In fact, the only universal Air Door Check made that can be sold over the counter, not requiring an expert to put it on. Can be applied by anybody, and are sold at a less price than other Checks. Catalogues and Price Lists furnished on application.







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BEST CORN HUSKER IN AMERICA. Recause it is made of steel.

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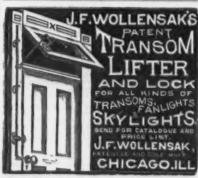
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Berdan Primers, all sizes, and B. L. Caps (for Sturte vant Shells). 90¢
All other Primers, all sizes. \$1.10 Augers & Bitts. L'Hommedieu's Ship Auger.
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Dearborn's No. 1....

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Belknap's 50 % can ax Handles. Oak Extra, 31 in., No. A..... Oak Extra, 34 in., No. A.... Oak Extra, 31 in., No. B... Oak Extra, 34 in., No. B... Oak Extra, 34 in., No. C.. dis 40&10 % Bird Cages. Hendry's Japanned. Hendry's Brass..... Blind Fasts. Botts. Borax.—Refined...... 104 Boring Machines. Eagle Upright, each......

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Union Solvered Acorn...
Union Spiral Spring...
Wrought Brass... ..dis 60&10 ..dis 70&10 ..dis 70&10 ..dis 70&10 Carpet Sweepers.
Welcome Rubber Roll....
Welcome Cog Wheel.....
asters.—Bed and Table. .dis 50&10 g

Chain.
Coil 3-16.
Coil 4.
Coil 5-16.
Coil 34.
Coil 36.
Coil 36.
Coil 36.
Coil 36.
Coil 36.
Coil 36. # 1 434¢ -White, Carpenter's. Buck's Chisels...

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Bucener Knives, Wood's, Lap Bolster, Square Butener Kaives, Wood's, Lap Bolster, Squs Handie: Steak Knives Lap Bolster, Oval Handie: Sticking Skinning: Butcher, Common Round Handie, Wood's. Shoe Knives, Wood's. Dog Collars.
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Brass, Pope & Stevens' list.} dis 40 % Door Springs, Torrey's Rod... Gem Coll, new list... Crown... Warner's... . \$\psi \dos \$1.50 \\ ...\dis20 \square \quad \text{dis20} \square \quad Drawing Knives.

Kimball's Solid Steel... # inch 7348

Eastern Mfg. Co.'s Solid Steel... # Inch 7348 dis 20 \$ Drills.—Morse Twist Drill Co.'s. Bit stock Drills... Wire Gauge Drills... Jobbers' and Letter Drills.... Drill Chucks.

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20, 2000
Hammers.
Maydole'sdia 25 g C. Hammond's
Hangers.
Common Hangers
Faultless Hangersdis 40 \$
American Parlor Door, \$6 set
Hatchets.—C. F. Dowse, new list
Hay KnivesLightning\$18.00, dis 10 %
HatchetsC. F. Dowse, new list
Trace Co. Mile. Co. B
Hooks and Staples.—Brewer's (new list)dis 70%
Horse Nails. No. 6 7 8 9 Putnam Pointed \$0.24 .29 .21 .20567 g Bridgewater 23 .21 .20 1930 g Knobs. dis 45 g
Knobsdis 45 % Lanterns.—Tubulars, No. 0
I.n seen Manuage
Continental
Lead.—Sheet
Landra - Morros De
Eagle Cabines
Eagle Cabinet
MARINETE FORESW. C. & CO
Mattecks. Long Cutter, \$16.00 ♥ doz
Pick Cutter, \$16.00 @ dos) Measuring Tapes.—Eddy'sdis 20 %
Meat Cutters.
Meat Cutters
Nails
Wire Carpet Nailsdis 50625 @ 506270 %
Ollers.—Zinc and Tin. dis 60 5 Brass and Copper dis 66 5 Draper's Common. \$\psi\$ dos.\$5.75; Patent, \$\psi\$ dos \$4.50 Thompson's. \$\psi\$ dos \$8.50 Malleable Iron. dis 10 5 dis 10 5 \$\psi\$ dis 10 8
Dx Bows.—Extra finished and varnisheddis 15 % 126 in., \$\psi\$ dos. pair\$\frac{1}{2}\) 00 2 in., \$\psi\$ dos. pair\$\frac{1}{2}\).00
Paper.—Common Tarred Sheathing # 1846
Day Bows Extra Inished and varnished dis 15 5 15 In. \$\pi\$ dos. pair \$\pi\$ 0.0 2 In. \$\pi\$ dos. pair \$\pi\$ 0.0 25 In. \$\pi\$ dos. \$\pi\$ 0.0 25 In.
PICKA.
I. C. T. W., Adze Eye, 6 to 7 m \$13.00dis 60 %
Auburn Tool Co., Bench. dis 20 % Auburn Tool Co., Fancy dis 15 % Auburn Tool Co., Fancy dis 15 % Auburn Tool Co., English Iron dis 15 % N. Y. Tool Co., Bench dis 25 %
N. Y. Tool Co., Bench
Plated Ware.—Rogers & Bro. dis 50&10 % Pliers.—Vom Cleff & Co.'s net that Button's Wire Pliers dis 33½ %
Plumb & Levels.—Stanley R. & L. Codis 70&10 %
W. C. & Co., reduced listdis 60&10 %
Pulleys.—Acme or Excelsior, 1¾ in
umps.—Union Manufacturing Co.
fivers.—In b in Daders
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Cenuine Swedish dox \$13.50
tope, Manufacturers' list, February 6, 1886
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Genuine Swedish. \$\Pi\$ dos \$13.50\$ t ope. \$-\text{Manila}\$. \$\Pi\$ dos \$13.50\$ t ope. \$-\text{Manila}\$. \$\Pi\$ inch and larger \$\pi\$ 13. \$\pi\$ Manila\$. \$\Pi\$ inch and larger \$\pi\$ 13. \$\pi\$ Manila\$. \$\Pi\$ inch and larger \$\pi\$ 13. \$\pi\$ Manila\$. \$\Pi\$ inch and \$\Pi\$ inch \$\pi\$ 14. \$\pi\$ Manila\$. \$\Pi\$ inch and \$\Pi\$ inch \$\pi\$ 15. \$\pi\$ \$\pi\$ Manila\$. \$\Pi\$ inch and larger \$\pi\$ 10.0\$ \$\pi\$ \$\pi\$ Sisal. \$\pi\$ inch and larger \$\pi\$ 10.0\$ \$\pi\$ \$\pi\$ Sisal. \$\pi\$ inch and larger \$\pi\$ 10.0\$ \$\pi\$ \$\pi\$ Sisal. \$\pi\$ inch and larger \$\pi\$ 10.0\$ \$\pi\$ \$\pi\$ Sisal. \$\pi\$ inch \$\pi\$ 11. \$\pi\$ \$\pi\$ Sisal. \$\pi\$ inch \$\pi\$ \$\pi\$ \$\pi\$ 10.0\$ \$\pi\$ \$\pi\$ Sisal. \$\pi\$ inch \$\pi\$ \$\pi\$ \$\pi\$ \$\pi\$ \$\pi\$ Sisal. \$\pi\$ inch \$\pi\$ \$\p
Jute Rope # 276
tales.—Stanley, Boxwood

Sad Irens.—Common.... Laundry...... Tailors' Geese.... Enterprise "Potts'"..... Sandpaper. Baeder & Adamson .dis 20 % Scales.—Pairbahks...

Screen Window and Door Frames
Hart's Screen Frames, No. 1...
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Wood Screws List February 15, 1886.
Flat-Head 1108.
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Scythes.
Blood's Clipper Scythes.
Nolin's Cl pper Scythes.
Nolin's Solid Steel Scythes
Emerson Clipper Scythes
Emerson Jolld Steel Scythes. Shears. - American Shear Co., new list. Sacw Shovels.

Skates.—Eastern Acme.
No. 5, Steel Runners.
No. 7, Steel Runners, hardened. p pair \$1.00
No. 10, Steel Runners, hardened, Nickel
Plated pair 2.00 No. 10, Steel Runners, hardened, Nickel Plated

Stocks and Dies.—King's dis 10&5 5

Tacks.—Eastern Mg. Co.
American iron Carpet Tacks, all kinds. dis 65&10 5
Steel Carpet Tacks, all kinds dis 65&10 5
Swedes Iron Carpet Tacks, all kinds.
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C Transom Lifters. Wollensak's Patent Iron Bronzed... Traps.-Game.

dis 60 %

Newhouse.... Oneida, Pattern..... Game, Blake's Patent.... Vines.—Simpson's Adjustable. Howard Vise Co. I. C. T. Co.'s Blacksmiths'.... Richmond Bottom Strip, Walnut. # dos \$5.00
Richmond Bottom Strip, imit. Walnut. # dos
Richmond Bottom for Double Doors. # dos 15.00
Richmond Bottom for Double Doors. # dos 15.00
Underwood's. # pair, plain \$2.75, rubber 4.00 Wire Cloth .- "Clinton

sior for Stationary Tube No. F-11.

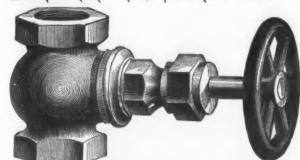
or with Folding Bench No. A-10nch coelsior with Folding Bench No. B—11 Excelsior with Folding Bench No. B-1 inch. Novelty Set Tub, E. Universal. Bureka. # dos 52.50 # dos 27.00 # dos 20.00 P 3 5366

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BRASS COCKS AND VALVES



For Steam, Water, and Gas.

WROUGHT IRON PIPE & FITTINGS

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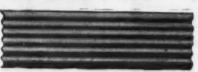
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27.00 31.50

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AMERICAN PATENT

IMPROVED CUT NAIL MACHINES

AUTOMATIC NAIL SELECTORS and NAIL FACTORY SUPPLIES.

SHTABULA, - - - OHIO.

Prices and particulars furnished on application.

TENSILE | 56,000 to 64,000 lbs. REDUCTION OF AREA—35 to 43 per cent



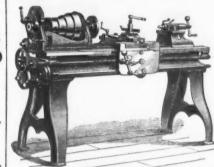
CAPACITY. Plates 136 inch thick to No. 14. 30 feet long. 70 inches wids.

WM. McILVAIN & SONS,

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CHARCOAL BLOOMS.

Locomotive, Fire Box, Flange and Shell



This Lathe is made with a hollow steel spindle, steel lead screw, steel rack, patent friction rod feed, rests are made either raise and fall or plain gibbed, and lathe with or without taper attach-

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Manufacturers and Dealers in

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WE CARRY THE LARGEST LINE OF TOOLS AND SUPPLIES IN THE CITY.

NEW 25-INCH SHAPER.

HIS SHAFER has a stroke of 25 inches, cross-feed of table 27 inches, and will plane 20 inches high. It is an extra heavy machine, and is designed for the heaviest class of work, while at the same time very small and accurate work may be done on it. It has automatic feed in all circuit ns, very simple in operation, and within easy reach of the operator. The table is made in the form of a four-sided box, which makes it very strong and solid under a heavy cut. Table will move to the left far enough to take in 8½ inches to center of machine, and tool can be set at an angle to plane 10 or 11 inches wide. A bar of 4 inch from may be passed through under the cutter bar for key seating or other work. The cutter bar is driven by two rack gears of large duameter, on a heavy steel shaft supported on beginns at each

of large dameter, on a heavy steel shaft supported on bearings at each end. Driving pinion and gear are on the outside of the machine, allowing the use of extra large gear and increased speed of pulleys, and consequent gain of power on cutter bar. All pinions made of best machine steel.

Driving and feed shafts have extra outside bearings or supports.

The machine has patent improved friction driving movement, and we guarantee cutter bar to work up to a line and reverse without jar or noise.

Weight of Machine,

without jar or noise.

Weight of Machine,
2700 pounds,
Size of Tight and Loose
Pulleys on C. Shaft, 12 x 3.
Speed of Counter Shaft,

CO., THE HENDEY MACHINE TORRINGTON, CONN.





W.H. CARTER'S PATENT NEEDLE HAY KNIFE.

IMPROVED BY M.M. BARTLETT.

Improvement Patented April 28, 1885.

Carter's Improved NEEDLE HAY KNIFE, THE HEST IN THE WORLD.



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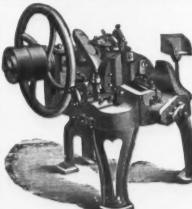
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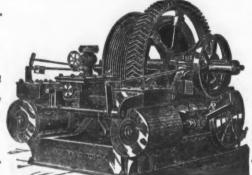


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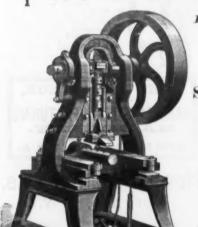
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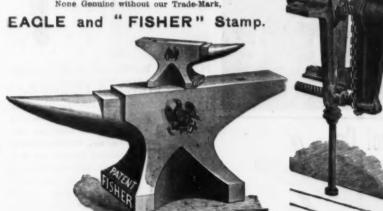
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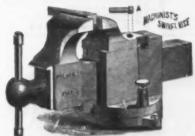
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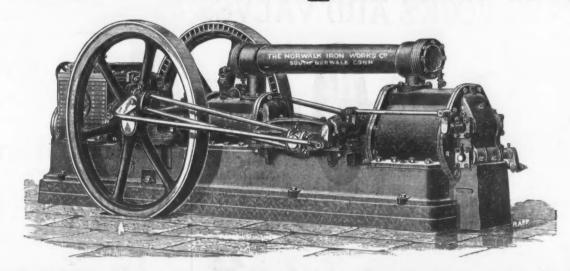
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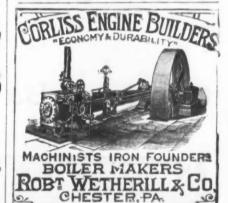
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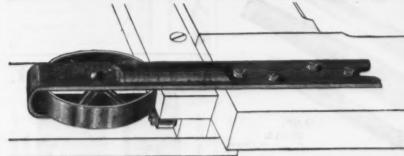
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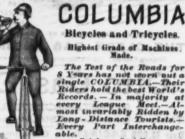
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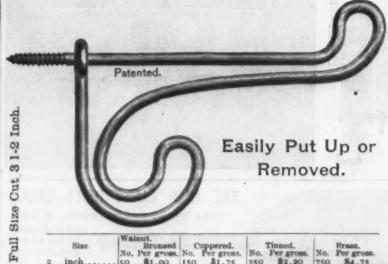
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